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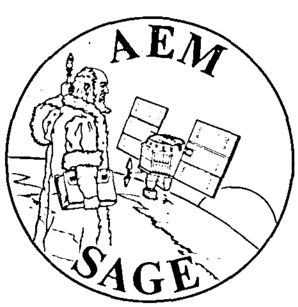
SAGE Aerosol Measurements

Volume II—January 1, 1980, to December 31, 1980

M. Patrick McCormick



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M. Patrick McCormick

Langley Research Center
Hampton, Virginia

National Aeronautics
and Space Administration

Scientific and Technical
Information Branch

Contents

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Summary

The Stratospheric Aerosol and Gas Experiment (SAGE) was launched on February 18, 1979. It measured the solar irradiance at four wavelengths (1.00 μm, 0.60 μm, 0.45 μm, and 0.385 μm) during each sunrise and sunset encountered by the satellite. The satellite operated for about 3 years and in that time period produced a large number of profiles of aerosol extinction, ozone concentration, and nitrogen dioxide concentration between the latitudes of approximately 80°N and 80°S.

The SAGE results have been separated into two sets: one set for aerosol measurements and the other set for gas (ozone and nitrogen dioxide) measurements. Presented in this report are the SAGE aerosol measurements for the period of January 1 to December 31, 1980, covering the latitude range of 80°N to 80°S. The intent of this report is to provide, in a ready-to-use format, a representative sample of the second year of data. No attempt has been made to give any detailed geophysical explanation or analysis of these data. This report presents zonal averages and seasonal averages of the aerosol extinction at 1.00 μm and 0.45 μm, ratios of the aerosol extinction to the molecular extinction at 1.00 μm, and ratios of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm. The averages for 1980 are shown in tables and in profile and contour plots (as a function of altitude and latitude). In addition, temperature data provided by the National Oceanic and Atmospheric Administration (NOAA) for the time and location of each SAGE measurement are averaged and shown in a similar format.

Up until mid-May 1979, both sunrise and sunset data were obtained; but then the spacecraft batteries began to noticeably degrade. The SAGE instrument continued to function perfectly, but because of the lack of power, sunrise measurements could no longer be made after July 1979. Thus the data in this report are for sunset measurements only.

During 1980 the volcanic eruptions from Mount St. Helens (May 18, 1980) and Ulawun (October 7, 1980), as well as the earlier eruption of Sierra Negra in 1979, injected material into the stratosphere. Effects from these eruptions on the stratospheric aerosol distribution are evident in the data presented.

Over portions of the globe undisturbed by volcanic debris, the peak aerosol extinction values at 1.00 μm in the main layer were about 1×10^{-4} to 2×10^{-4} km^{-1}, whereas the peak aerosol extinction at 0.45 μm varied from about 4×10^{-4} to 8×10^{-4} km^{-1}. Calculated stratospheric optical depth values for the same periods at a wavelength of 1.00 μm varied between 0.001 and 0.002. At latitudes influenced by an eruption, the peak aerosol extinction values and the optical depth values at 1.00 μm were about 2 to 3 times larger. In these perturbed regions, the maximum value of the ratio of the aerosol to molecular extinction at 1.00 μm varied between 4 and 11. The location of these maximum values varied in both latitude and altitude. It was also found that the locations of the relative maximum and minimum values of the ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm were strongly influenced by volcanic material. It should be noted that the values presented in this report are zonal averages and are not necessarily representative of individual observations, which may be an order of magnitude or more above near-background values.

Introduction

The Stratospheric Aerosol and Gas Experiment (SAGE) was launched on a dedicated Applications Explorer Mission satellite (AEM-2) on February 18, 1979. The satellite circled the Earth once every 97 minutes, usually entered the Earth's shadow on each orbit, and thus encountered nearly 15 sunsets and 15 sunrises per day. During each sunrise and sunset observed by the satellite, the SAGE instrument measured solar irradiance at four wavelengths until November 1981, when the spacecraft power system failed. The irradiance versus time data were telemetered to Earth and subsequently inverted to yield extinction coefficients for the stratospheric aerosol at two wavelengths and for concentrations of ozone and nitrogen dioxide.

The SAGE data results comprise a collection of profiles for aerosol extinction, ozone concentration, and nitrogen dioxide concentration taken at a large number of geographic locations. More than 12 000 profiles were obtained for each wavelength over about 3 years at latitudes ranging from 80°N to 80°S. The aerosol extinction profile at 1.00 μm has a vertical resolution of 1 km below about 25 km and a vertical resolution of 5 km above about 25 km. In comparison, the aerosol extinction profile at 0.45 μm has a vertical resolution of 3 km below about 25 km.

The SAGE aerosol data are intended to be used to study aerosol sources, sinks, and transport; the radiative and climatological effects of aerosols; the exchange of particulate matter between the stratosphere and the troposphere; the development and dispersion of volcanic layers; the occurrence of cirrus and other high clouds near the tropopause; and polar stratospheric clouds. On cloudless occasions, information can be obtained on high- to mid-tropospheric aerosols.

The data base generated by SAGE will be useful for studies of the effect of seasonal and short-term meteorological variations on the stratospheric aerosol. It should also be helpful in evaluating atmospheric chemical and microphysical processes in the formation and maintenance of the aerosol layer, and it will demonstrate the effect of volcanic activity on the stratospheric aerosol. The simultaneous measurement of ozone and nitrogen dioxide in the same air mass may aid in interpreting the importance of heterogeneous chemistry in the stratosphere. When used in conjunction with the temperature profiles, the data will permit quantification of the climatic effects of cirrus cloud layers in the lower stratosphere and upper troposphere. A number of studies using the SAGE data set (refs. 1–4) are included in the list of references.

This report presents, in a ready-to-use format, representative aerosol data and seasonally and zonally averaged aerosol data for the second calendar year of the SAGE 34-month data set. No attempt has been made to apply these results to any of the studies mentioned above. The entire data set has been archived at the National Space Sciences Data Center, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771, and is available on magnetic tape.

SAGE Instrument

The SAGE instrument is a four-channel Sun photometer. Spectral discrimination is achieved by using a holographic diffraction grating, which disperses the incoming sunlight according to wavelength. The wavelengths selected were 0.385 μm, 0.45 μm, 0.60 μm, and 1.00 μm. These wavelengths were selected for the following reasons. At 0.385 μm, 0.45 μm, and 1.00 μm, absorption by stratospheric gases is quite small below about 20 km, and solar extinction in these channels is almost entirely caused by scattering by aerosol particles and air molecules. At higher stratospheric altitudes attenuation at 0.60 μm is primarily caused by ozone, and above an altitude of about 25 km, the extinction at 0.385 μm and 0.45 μm is mainly caused by absorption by nitrogen dioxide and scattering by air molecules.

In operation, the instrument is activated just before a sunrise or sunset is encountered by the satellite. The instrument searches for the Sun and nulls the center of intensity of the solar image. A mirror then begins scanning vertically across the face of the Sun. This mirror reverses in direction each time a limb crossing occurs. Solar light is reflected from the scan mirror to the aperture of a small Cassegrainian telescope, which defines an instantaneous field of view on the horizon of about 0.5 km and focuses this light onto the diffraction grating. The intensity of light dispersed by the grating at the four wavelengths of interest is measured by four silicon diode sensors. Their output is digitized (12 bits), recorded on an onboard tape recorder, and periodically telemetered to Earth. The raw data (irradiance as a function of time) are reconstructed and inverted to yield extinction as a function of altitude for each spectral channel at each location and time of a SAGE measurement (ref. 5).

Figure 1 illustrates the viewing geometry of the satellite system. As the satellite moves toward the Earth's shadow, the tangent height (h) decreases, and the solar light reaching the instrument traverses more and more of the Earth's atmosphere. Typically, measurements are made from an altitude of about 350 km to the surface, or until the Sun is obscured by clouds. As the tangent height decreases, the tangent point (P in fig. 1) changes position because of the movement of the satellite along the orbit path during a measurement sequence. This movement may vary between 0° and about 3° in latitude, depending on the satellite-viewing geometry. In this report, the latitude and longitude corresponding to the position of the tangent point when the tangent height is 20 km (near the peak of the stratospheric aerosol extinction) are given as the SAGE profile location. A complete description of the SAGE instrument can be found in reference 6.

AEM-2 Orbit and Locations of Measurement Points

The AEM-2 orbit was inclined at 55° with an apogee of 660 km, a perigee of 548 km, and a period of 96.8 minutes. This highly precessing orbit provided measurement opportunities distributed around the Earth for latitudes from 80°N to 80°S (depending on season). The measurements were made each time the satellite entered or left the Earth's shadow, that is, during each sunrise and sunset encountered by the satellite. Because of the orbital motion of the satellite, the rotation of the Earth, and the motion of the Earth around the Sun, successive measurements were separated by about 24° in longitude and occurred at slightly different values of latitude. Since it is important to understand the sequence of measurement locations, we illustrate in figure 2 the set of sunset tangent locations for January–March 1980. On this plot we have drawn a series of arrows showing the sequence of consecutive measurement locations. Note that the measurements run from east to west with a small change in latitude between measurements. Consequently, the locations of the measurement points trace out a spiral path winding from about 70°S to 60°N in this example.

Data Products

The basic data product generated from each SAGE measurement is an extinction profile (extinction as a function of altitude) for each of the four spectral channels (1.00 μm, 0.60 μm, 0.45 μm, and 0.385 μm). These contain information on the concentrations of stratospheric aerosols, ozone, and nitrogen dioxide and on molecular density as a function of altitude, longitude, latitude, and time. A corresponding temperature profile is provided by the National Meteorological Center (NMC) of the National Oceanic and Atmospheric Administration (NOAA) for the time and location of each SAGE measurement. These profiles were constructed by interpolation from the NMC gridded global data sets (ref. 7).

The raw data consist of measurements of irradiance as a function of time. The temperature profiles are used to obtain molecular density, and the irradiance data are inverted by techniques described in reference 5 to generate extinction profiles. The extinction profiles are then archived at the National Space Sciences Data Center, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771. The archived data products are available to interested researchers and consist of two sets of computer tapes called MERDATS (the raw irradiance and temperature data tapes) and PROFILES (the inverted extinction profiles for each event). A user's guide to the SAGE PROFILES tape is available from the Aerosol Research Branch, Atmospheric Sciences Division, NASA Langley Research Center, Hampton, Virginia 23665-5225.

A sampling of the results obtained during the second year of operation of the SAGE satellite (January 1, 1980, to December 31, 1980) is presented in this report. Specifically, these results consist of (1) tables of SAGE measurement locations and dates, (2) maps of measurement locations, (3) tables of average extinction and temperature profiles as a function of altitude, (4) plots of average extinction and temperature profiles, (5) daily extinction isopleths as a function of longitude and altitude, (6) plots of zonally averaged extinction and temperature data per sweep, (7) tables of seasonally averaged extinction and temperature data, (8) plots of seasonally averaged extinction and temperature data, and (9) tables of calculated optical depth per sweep at various latitudes and longitudes. The data given are for aerosols at the 1.00-μm and 0.45-μm channels. It should be noted that because of the influence of noise, the data at 0.45 μm obtained above 30 km are less reliable than data obtained at lower altitudes.

Tables of Measurement Locations

Figure 3 gives an overview of the latitude and time coverage of the SAGE measurements for the year 1980. There are a number of interesting points to be made regarding this figure that will help in understanding the data set. First, the measurements begin at a latitude of 48°N on January 1. A series of measurements were made from 48°N to 12°N. Another set of continuous measurements were made starting at 70°S on January 27 and moving northward to 58°N on March 6. As is apparent in figure 3, the measurement locations are sampled alternately in either a northward or southward progression. For convenience, a measurement "sweep" for this report is defined as the period (or set of data obtained) during a maximum-to-maximum (north-to-south or south-to-north) latitudinal measurement sequence.

Examination of figure 3 shows periods during January, March, April, June, October, and December when no measurements were obtained. During these periods, the Sun, Earth, and satellite geometry is such that the satellite does not enter the shadow of the Earth and thus is unable to make a sunset measurement. It should be noted that after May 1979, the satellite began experiencing a power system problem. In order to allow the satellite battery system to charge fully before a measurement, data were primarily collected during sunsets after June 1979. With this technique, it was possible to extend the life of the satellite considerably, and data were obtained until November 1981.

Table I gives a summary of the measurement locations and dates for the second year of SAGE measurements. The sunset data are presented in 11 separate sweeps starting with sweep 10 and ending with sweep 20. The table gives the dates corresponding to measurements made within a 10° latitude band. Thus, for example, for sunrise sweep 10, the measurements made between 50°N and 40°N were taken from January 1 to January 7.

Maps of Measurement Locations

There are 11 maps in figures 4 through 14 presenting the geographic locations of the measurement points by sweep for January through December 1980. The format of these maps follows that of figure 2.

Tables of Average Extinction and Temperature Profiles

Between January and December 1980, over 2500 SAGE measurements were made, and extinction profiles were generated for each of the four irradiance channels for each measurement. Clearly, this is far too much data to be presented in a reasonably sized report. Consequently, *average* extinction profiles are presented in this report. These are evaluated for all the measurements within a latitude band of 10° during a particular sweep. Tables II–XIII contain zonally averaged profiles by month for each 10° latitude band. The following sunset data are presented: (a) aerosol extinction at 1.00 μm, $\beta_{a,1.00}$ (units of 10^{-4} km^{-1}), (b) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (c) aerosol extinction at 0.45 μm, $\beta_{a,0.45}$ (units of 10^{-4} km^{-1}), (d) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, (e) temperature, and (f) geopotential height of the standard pressure surfaces and the tropopause. In addition, the last row in the aerosol extinction data at both 0.45 μm and 1.00 μm contains the calculated optical depths. The optical depths were obtained by evaluating the integral of each aerosol extinction profile from 2 km above the tropopause to 40 km and are given in units of 10^{-4}.

The eruption of Sierra Negra (0.8°S, 91.2°W) on November 13, 1979, injected a significant amount of volcanic material into the lower stratosphere at low latitudes. However, not all latitudes, particularly mid and high latitudes of the southern hemisphere, experienced the effects from this eruption in early 1980. The data show that in these regions free from volcanic perturbation, typical values of the peak aerosol extinction at 1.00 μm are about 1×10^{-4} to 2×10^{-4} km^{-1} and at 0.45 μm, about 4×10^{-4} to 8×10^{-4} km^{-1}. The calculated stratospheric optical depth values ranged between 0.001 and 0.002. These values are similar to those reported in reference 8 during 1979 for near-background conditions.

The effects from the eruptions of Sierra Negra and Ulawun (5.0°S, 151.3°E) on October 7, 1980, in the Tropics and the eruption of Mount St. Helens (46.2°N, 122.2°W) on May 18, 1980, at higher latitudes in the northern hemisphere are apparent in the data of this report. Peak aerosol extinction values at 1.00 μm and at 0.45 μm in regions of volcanic activity were about 2 to 3 times the levels observed during near-background conditions. Calculated stratospheric optical values also increased by a factor of about 2 to 3. It should be noted that these values represent averages and not single observations, which may be an order of magnitude or more greater. A detailed discussion of the increased loading of the stratospheric aerosol is given in reference 9.

The relative maximum in the aerosol to molecular ratio at 1.00 μm varies both in its value (between 4 and 11) and its location (both altitude and latitude). Information about the relative size of the particles may be obtained from the ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm: larger values indicate that smaller particles are more prevalent, whereas smaller values indicate that larger particles are more prevalent. The locations of the maximum and minimum values are influenced by the volcanic debris and vary in latitude and altitude as well.

Plots of Average Extinction and Temperature Profiles

Plots of extinction and temperature profiles averaged over 10° latitude bands are given in figures 15 through 117. The figures are formatted with five panels each, containing (1) temperature, (2) logarithm of the aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, (3) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (4) logarithm of the aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, and (5) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$. In all cases, the ordinate gives the altitude in kilometers.

The small horizontal bars on each profile represent plus and minus one standard deviation from the mean. The sweep number and the midpoint of the latitude band over which the average is taken are noted in the legend of each figure. The heavy horizontal line extending across the five panels represents the average altitude of the tropopause for the time and latitude covered by these measurements.

Daily Isopleths

From the measurements made during a 24-hour period, one obtains 15 sunset profiles of extinction as a function of altitude. These are obtained over the range of about 360° in longitude, and each profile is separated by 24°. It is, therefore, possible to interpolate between profiles to give a daily picture of extinction as a function of longitude and altitude. Such daily plots were generated for each day of SAGE data for (a) aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, (b) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (c) aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, (d) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, and (e) temperature. Selected from this large number of plots is an example from each 10° latitude band for each sweep. Although the selection was arbitrary, an attempt was made to choose plots which were representative of the aerosol distribution at that latitude for each sweep. These plots are shown in figures 118 through 203.

As mentioned before, the isopleths in these plots were obtained by interpolating between vertical profiles. Consequently, the values presented are measured values only at the locations of the profiles.

These locations are indicated by the tick marks along the top and the bottom of the frame; no tick marks are drawn for missed events. The interpolations were carried out, and the plots were drawn by a routine called USCONTOUR using cubic splines under a tension of 2.5.

The numbers on the curves in panels (a) and (c) give extinction in units of 10^{-5} km^{-1}. The aerosol extinction contour lines seen in panels (a) and (c) are ordered sequentially in the following manner: 1, 2, 3, 6, 10, 20, 30, 60, 100, 200, 300, 600, and 1000. Local high and low values are indicated by the symbols H and L, and the maximum or minimum values are printed under the H or L. Panel (b) gives isopleths for the ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$. The molecular extinction is calculated by using the temperature profiles provided by NOAA. In panel (d) the ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, is given; variations in this quantity suggest variations in the size distribution of the aerosol particles. Panel (e) gives temperature isopleths in kelvin, with each contour interval separated by 3 K. Dates are indicated in days and fractions of a day. For example, March 5.96 means 11:02 p.m. on March 5. In each plot, the long vertical line represents the prime meridian, and the tropopause is indicated by crosses in circles.

The isopleth plots for 1.00 μm and 0.45 μm show that occasionally features which appear at 0.45 μm do not appear at 1.00 μm, and vice versa. The isopleths show some rather interesting variations in the aerosol extinction as a function of longitude and as a function of latitude. The most obvious changes with longitude occur from the ground to just above the tropopause; these features are associated with clouds or tropospheric haze. At higher altitudes, longitudinal variations in the aerosol extinction can often be best appreciated by noting the altitude of the lines denoted by "6.00" and "20.0" in the extinction contours for 1.00 μm and 0.45 μm, respectively. Latitudinal variations can best be appreciated by considering a given type of isopleth plot (such as aerosol extinction at 1.00 μm) and comparing the plots presented for each full sweep.

Plots of Zonally Averaged Extinction and Temperature Data

The latitudinal variation in aerosol extinction is presented in terms of a zonal average. Data were averaged in 10° latitude bands, as described earlier, for each sweep. These averages are displayed in figures 204 through 212. The individual plots in each figure are organized as follows: (a) aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, (b) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (c) aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, (d) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, and (e) temperature. The contour intervals in parts (a) and (c) are in units of 10^{-5} km^{-1} and are ordered sequentially as follows: 1, 2, 3, 6, 10, 20, 30, 60, 100, 200, 300, 600, and 1000. In each plot, shaded diamond symbols represent the zonally averaged tropopause height, which is calculated from temperature profiles at each SAGE measurement location.

It is important to note that these figures do not give an instantaneous "snapshot" of the atmosphere because the latitudinal extremes in the plots may be separated by as much as 4 weeks, as shown in the spiral nature of the SAGE data measurements of figures 4 through 14. A plot for sweep 15 is not shown because of the lack of available data, which resulted in poor latitudinal coverage.

Evident in the zonally averaged aerosol extinction plots for 0.45 μm and 1.00 μm is the uniform layering of the stratospheric aerosols. The extinction contours in the lower stratosphere conform to the height of the tropopause at all latitudes. A relative maximum in the zonally averaged extinction ratio at 1.00 μm is located over the Tropics at a height approximately 10 km above the tropopause and indicates a possible source region for stratospheric aerosols.

Tables of Seasonally Averaged Extinction and Temperature Data

All the data obtained during a given season have been used to generate tables of aerosol extinction as a function of altitude and latitude. Tables XIV–XVII present the data for the four seasons of 1980. The parameters tabulated are (a) aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, (b) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (c) aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, (d) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, (e) temperature, and (f) geopotential height of the standard pressure surfaces and the tropopause. In addition, the last row in the aerosol extinction data at both 0.45 μm and 1.00 μm contains the calculated optical depths. The four seasons are defined as follows: spring—the months March, April, and May; summer—the months June, July, and August; fall—the months September, October, and November; and winter—the months December, January, and February. Because the SAGE satellite system was launched at the end of February 1979, the winter season includes data from January and February 1981 for continuity purposes.

Plots of Seasonally Averaged Extinction and Temperature Data

The data from tables XIV–XVII are presented as isopleth plots of extinction as functions of altitude and latitude for a given season in figures 213 through 216. The following parameters have been plotted: (a) aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, (b) ratio of the aerosol extinction to the molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$, (c) aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, (d) ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$, and (e) temperature. The contour intervals in parts (a) and (c) are in units of 10^{-5} km^{-1} and are ordered sequentially in the following manner: 1, 2, 3, 6, 10, 20, 30, 60, 100, 200, 300, 600, and 1000. The tropopause is indicated by shaded diamond symbols.

Many of the features seen in these seasonal plots are also visible in the plots of zonally averaged data. The volcanic perturbation due to the eruption of Mount St. Helens is clearly evident in the seasonally averaged plot of the ratio of the aerosol extinction to the molecular extinction at 1.00 μm in figure 214(b). A similar enhancement in the aerosol distribution is indicated in figures 215(b) and 216(b) following the eruption of Ulawun in the Tropics.

Tables of Optical Depth

Table XVIII presents computed optical depth as a function of latitude and longitude. As described earlier, optical depth is the integral of the 0.45 μm and 1.00 μm aerosol extinction upward from a height 2 km above the local tropopause. Values are placed into bins of 10° in latitude and 20° in longitude per sweep and then averaged. This table shows the variability of optical depth within a latitude band; however, care should be taken in interpreting this variability during background aerosol conditions because of the limited number of SAGE observations within each bin for the short time period of one sweep.

This table also clearly shows the effect of volcanic material on the stratospheric aerosol distribution. For example, the mass loading from Mount St. Helens can be seen in tables XVIII(f) and XVIII(g). The calculated optical depth values in the 10° band centered at 55°N are about 3 to 6 times greater than values shown for the southern hemisphere. Table XVIII(j) shows the volcanic influence from the eruption of Ulawun. At low latitudes, the increase in optical depth values is less dramatic but still significant, about 2 to 4 times higher than values shown in Table XVIII(b) for an earlier period.

Concluding Remarks

This report presents a summary and representative samples of the second-year aerosol data set (1980) of the Stratospheric Aerosol and Gas Experiment (SAGE). It contains tables and maps showing the dates and locations of measurements. Averages of the aerosol extinction at 1.00 μm, the aerosol extinction at 0.45 μm, the ratio of the aerosol extinction to the molecular extinction at 1.00 μm, the ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm, and the temperature are presented in 10° latitude bands in tables and in profile and contour plots. The data observed during a sunset encountered by the satellite are presented as a function of altitude and latitude for a given sweep. Representative examples of daily isopleths of each of these quantities in 10° latitude bands are also displayed. These plots show the variation of a parameter as a function of altitude and longitude for a particular day. In addition, seasonal averages in 10° latitude bands are presented in tabular and contour plot form. Calculated optical depth values from the aerosol extinction at 0.45 μm and 1.00 μm in latitude and longitude bins are also displayed in tables for individual sunrise or sunset sweeps. Results for the first calendar year are presented in Volume I of this series, NASA Reference Publication 1144.

The data obtained for early 1980 are interesting because the stratospheric aerosol layer was significantly influenced by the eruptions of Sierra Negra (November 13, 1979), Mount St. Helens (May 18, 1980), and Ulawun (October 7, 1980). The data taken at mid and high latitudes in the southern hemisphere in early 1980 showed features in the aerosol distribution similar to those features observed during the volcanic quiescent period of 1979. At these latitudes, peak aerosol extinction values at 1.00 μm were about 1×10^{-4} to 2×10^{-4} km^{-1}, whereas the peak aerosol extinction at 0.45 μm varied from 4×10^{-4} to 8×10^{-4} km^{-1}. Calculated stratospheric optical depth values for the same regions varied between 0.001 and 0.002, which are similar values to those calculated for near-background conditions.

In contrast, regions of volcanic activity showed that the aerosol extinction values at 1.00 μm and at 0.45 μm were about 2 to 3 times the levels observed during near-background conditions. Likewise, the stratospheric optical depth values increased by a similar factor. It should be noted that these are average values and are not representative of individual observations, which may be one or more orders of magnitude higher than the reported averages.

This maximum ratio of the aerosol to molecular extinction at 1.00 μm varied between 4 and 11 at different latitudes and altitudes. The locations of the relative maximum and minimum values of the ratio of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm were also strongly influenced by the volcanic eruptions.

This report is intended to provide representative and summary aerosol data of the second year of SAGE measurements in a ready-to-use visual format to facilitate use in atmospheric and climatic studies.

NASA Langley Research Center
Hampton, VA 23665-5225
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References

1. Lenoble, J.; and Pruvost, P.: Inference of the Aerosol Angstrom Coefficient From SAGE Short-Wavelength Data. *J. Clim. & Appl. Meteorol.*, vol. 22, no. 10, Oct. 1983, pp. 1717–1725.
2. Woodbury, Gerard E.; and McCormick, M. P.: Global Distributions of Cirrus Clouds Determined From SAGE Data. *Geophys. Res. Lett.*, vol. 10, no. 12, Dec. 1983, pp. 1180–1183.
3. Yue, Glenn K.; McCormick, M. P.; and Chu, W. P.: A Comparative Study of Aerosol Extinction Measurements Made by the SAM II and SAGE Satellite Experiments. *J. Geophys. Res.*, vol. 89, no. D4, June 30, 1984, pp. 5321–5327.
4. Russell, P. B.; McCormick, M. P.; Swissler, T. J.; Rosen, J. M.; Hofmann, D. J.; and McMaster, L. R.: Satellite and Correlative Measurements of the Stratospheric Aerosol. III: Comparison of Measurements by SAM II, SAGE, Dustsondes, Filters, Impactors and Lidar. *J. Atmos. Sci.*, vol. 41, no. 11, June 1, 1984, pp. 1791–1800.
5. Chu, W. P.; and McCormick, M. P.: Inversion of Stratospheric Aerosol and Gaseous Constituents From Spacecraft Solar Extinction Data in the 0.38–1.0-μm Wavelength Region. *Appl. Opt.*, vol. 18, no. 9, May 1, 1979, pp. 1404–1413.
6. McCormick, M. P.; Hamill, Patrick; Pepin, T. J.; Chu, W. P.; Swissler, T. J.; and McMaster, L. R.: Satellite Studies of the Stratospheric Aerosol. *Bull. American Meteorol. Soc.*, vol. 60, no. 9, Sept. 1979, pp. 1038–1046.
7. Russell, P. B., ed.: *SAGE Ground Truth Plan—Correlative Measurements for the Stratospheric Aerosol and Gas Experiment (SAGE) on the AEM-B Satellite.* NASA TM-80076, 1979.
8. McCormick, M. Patrick: *SAGE Aerosol Measurements. Volume I—February 21, 1979, to December 31, 1979.* NASA RP-1144, 1985.
9. Kent, G. S.; and McCormick, M. P.: SAGE and SAM II Measurements of Global Stratospheric Aerosol Optical Depth and Mass Loading. *J. Geophys. Res.*, vol. 89, no. D4, June 30, 1984, pp. 5303–5314.

TABLE I. SAGE MEASUREMENT LOCATIONS AND DATES
FOR SUNSET EVENTS DURING 1980

Sweep number	Latitude, deg		Measurement dates
	From	To	
10	50	40	January 1–January 7
	40	30	January 7–January 10
	30	20	January 10–January 12
	20	10	January 12
	10	0	January 13
	0	−10	
	−10	−20	
	−20	−30	
	−30	−40	
	−40	−50	
	−50	−60	
	−60	−70	
	−70	−80	January 27–January 28
11	−80	−70	January 28–January 30
	−70	−60	January 30–February 4
	−60	−50	February 4–February 8
	−50	−40	February 8–February 11
	−40	−30	February 11–February 14
	−30	−20	February 14–February 16
	−20	−10	February 16–February 18
	−10	0	February 18–February 19
	0	10	February 19–February 21
	10	20	February 21–February 22
	20	30	February 22–February 23
	30	40	February 23–February 26
	40	50	February 26–February 29
	50	60	February 29–March 6
12	60	50	March 6–March 14
	50	40	March 14–March 18
	40	30	March 18–March 20
	30	20	March 20–March 22
	20	10	March 22–March 23
	10	0	March 23–March 25
	0	−10	
	−10	−20	
	−20	−30	
	−30	−40	
	−40	−50	
	−50	−60	April 8
13	−60	−50	April 9–April 17
	−50	−40	April 17–April 22
	−40	−30	April 22–April 24
	−30	−20	April 24–April 26
	−20	−10	April 26–April 27
	−10	0	April 27–April 28
	0	10	April 28–April 29
	10	20	April 29
	20	30	
	30	40	
	40	50	
	50	60	
	60	70	
	70	80	May 9–May 12

TABLE I. Continued

Sweep number	Latitude, deg		Measurement dates
	From	To	
14	80	70	May 12–May 14
	70	60	May 14–May 19
	60	50	May 19–May 23
	50	40	May 23–May 26
	40	30	May 26–May 29
	30	20	May 29–May 31
	20	10	May 31–June 2
	10	0	June 2–June 4
	0	−10	June 4–June 6
	−10	−20	June 6–June 8
	−20	−30	June 8–June 11
	−30	−40	June 11–June 15
	−40	−50	June 15–June 24
15	−50	−40	June 24–June 29
	−40	−30	June 29–July 3
	−30	−20	July 3–July 4
	−20	−10	July 4–July 5
	−10	0	July 5–July 6
	0	10	
	10	20	
	20	30	
	30	40	
	40	50	
	50	60	
	60	70	July 19–July 20
16	70	60	July 20–July 27
	60	50	July 27–July 31
	50	40	July 31–August 3
	40	30	August 3–August 6
	30	20	August 6–August 8
	20	10	August 8–August 10
	10	0	August 10–August 11
	0	−10	August 13
	−10	−20	August 13–August 15
	−20	−30	August 15–August 16
	−30	−40	August 17–August 19
	−40	−50	August 19–August 22
	−50	−60	August 22–August 28
17	−60	−50	August 28–September 3
	−50	−40	September 3–September 7
	−40	−30	September 7–September 10
	−30	−20	September 10–September 12
	−20	−10	September 12–September 13
	−10	0	September 13–September 14
	0	10	September 14–September 15
	10	20	September 16–September 17
	20	30	September 17–September 18
	30	40	September 18–September 19
	40	50	September 19–September 21
	50	60	September 21–September 24
	60	70	September 24–September 27

TABLE I. Concluded

Sweep number	Latitude, deg		Measurement dates
	From	To	
18	70	60	September 27–October 2
	60	50	October 2–October 9
	50	40	October 9–October 13
	40	30	October 13–October 15
	30	20	October 15–October 17
	20	10	October 17–October 18
	10	0	October 18–October 19
	0	−10	October 19–October 20
	−10	−20	October 20
	−20	−30	
	−30	−40	
	−40	−50	
	−50	−60	
	−60	−70	
	−70	−80	
19	−80	−70	October 31–November 4
	−70	−60	November 4–November 9
	−60	−50	November 9–November 13
	−50	−40	November 13–November 16
	−40	−30	November 16–November 19
	−30	−20	November 19–November 21
	−20	−10	November 21–November 23
	−10	0	November 23–November 25
	0	10	November 25–November 27
	10	20	November 27–November 29
	20	30	November 29–December 1
	30	40	December 1–December 5
	40	50	December 5–December 13
20	50	40	December 13–December 20
	40	30	December 20–December 23
	30	20	December 23–December 24

TABLE II. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR JANUARY 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -				
	45.	35.	25.	15.	5.
5	6.05	5.33	16.12	7.46	1.04
6	5.71	9.16	14.66	5.43	4.65
7	2.97	12.95	6.70	6.43	9.17
8	1.99	14.20	4.05	8.12	5.03
9	2.02	16.39	2.99	6.04	3.61
10	5.78	5.89	2.30	5.78	8.43
11	4.27	2.85	1.95	6.18	8.75
12	2.72	2.68	1.79	6.27	7.75
13	2.37	2.26	1.58	6.44	11.73
14	2.44	2.24	1.54	10.31	6.72
15	2.62	2.50	1.68	8.49	9.45
16	2.26	2.70	1.87	6.36	4.49
17	1.75	2.31	2.20	5.21	3.01
18	1.44	1.87	2.48	3.42	2.78
19	1.27	1.43	2.02	3.08	3.43
20	1.11	1.20	1.43	2.00	3.10
21	.97	1.05	1.16	1.13	1.34
22	.88	.94	1.07	1.00	.97
23	.75	.81	.99	.98	.96
24	.63	.70	.92	.90	.92
25	.55	.54	.75	.80	.81
26	.40	.40	.58	.64	.67
27	.26	.27	.43	.43	.38
28	.18	.19	.29	.27	.27
29	.13	.13	.21	.18	.20
30	.09	.09	.14	.13	.14
31	.06	.06	.10	.09	.10
32	.05	.04	.07	.06	.07
33	.03	.03	.05	.05	.05
34	.03	.02	.03	.03	.04
35	.02	.02	.02	.03	.03
36	.02	.02	.02	.02	.03
37	.01	.01	.01	.02	.02
38	.01	.01	.01	.01	.02
39	.01	.01	.01	.01	.01
40	.01	.01	.01	.01	.01
*TROP.+2	20.17	19.28	12.69	10.92	13.39

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE II. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -				
	45.	35.	25.	15.	5.
5	1.96	1.86	3.64	2.22	.69
6	2.00	2.65	3.63	1.99	1.86
7	1.58	3.54	2.35	2.30	2.85
8	1.44	4.15	1.91	2.83	2.13
9	1.51	5.06	1.75	2.53	1.92
10	2.66	2.65	1.65	2.60	3.40
11	2.35	1.92	1.61	2.95	3.73
12	2.03	2.01	1.64	3.22	3.82
13	2.06	1.98	1.64	3.62	5.59
14	2.28	2.14	1.72	5.70	4.07
15	2.60	2.48	1.91	5.29	5.88
16	2.61	2.84	2.18	4.80	3.68
17	2.45	2.82	2.63	4.51	3.12
18	2.40	2.72	3.15	3.85	3.37
19	2.44	2.56	3.06	4.09	4.50
20	2.48	2.55	2.77	3.36	4.68
21	2.51	2.60	2.71	2.63	2.93
22	2.60	2.68	2.87	2.73	2.70
23	2.59	2.71	3.05	3.02	3.01
24	2.58	2.73	3.26	3.20	3.27
25	2.60	2.57	3.17	3.29	3.37
26	2.37	2.36	2.96	3.17	3.28
27	2.06	2.08	2.70	2.70	2.52
28	1.86	1.88	2.35	2.25	2.25
29	1.72	1.73	2.14	2.01	2.10
30	1.59	1.59	1.88	1.82	1.90
31	1.48	1.47	1.71	1.66	1.74
32	1.41	1.39	1.57	1.55	1.63
33	1.36	1.34	1.46	1.47	1.55
34	1.32	1.30	1.38	1.41	1.50
35	1.29	1.27	1.33	1.37	1.46
36	1.27	1.25	1.29	1.34	1.42
37	1.25	1.24	1.27	1.32	1.38
38	1.25	1.23	1.25	1.31	1.34
39	1.26	1.23	1.23	1.30	1.30
40	1.26	1.24	1.22	1.29	1.28

TABLE II. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -				
	45.	35.	25.	15.	5.
10	11.78	6.80	6.59	8.26	24.07
11	9.16	8.62	6.68	9.91	19.49
12	6.79	9.15	6.35	10.74	14.91
13	8.41	10.01	6.29	12.55	10.24
14	9.47	11.22	6.84	14.03	7.50
15	9.70	12.12	8.05	14.04	6.87
16	8.70	11.89	9.67	13.55	7.30
17	7.11	10.41	11.01	14.06	9.09
18	5.63	8.34	11.10	14.83	11.70
19	4.48	6.37	9.64	13.21	12.63
20	3.62	4.88	7.52	9.69	10.79
21	2.98	3.82	5.75	6.64	7.52
22	2.51	3.07	4.57	4.83	5.17
23	2.12	2.51	3.79	3.82	4.00
24	1.80	2.07	3.19	3.20	3.48
25	1.50	1.67	2.68	2.71	2.99
26	1.20	1.31	2.20	2.23	2.42
27	.92	1.00	1.75	1.74	1.81
28	.68	.74	1.34	1.26	1.27
29	.50	.54	.99	.88	.86
30	.36	.39	.72	.62	.59
31	.26	.29	.51	.44	.40
32	.19	.21	.37	.31	.28
33	.14	.15	.26	.22	.20
34	.10	.11	.18	.16	.14
35	.07	.08	.13	.11	.10
36	.05	.05	.09	.08	.08
37	.03	.04	.06	.06	.06
38	.02	.02	.04	.04	.05
39	.02	.02	.03	.03	.04
40	.01	.01	.02	.03	.03
*TROP.+2	71.50	81.33	56.59	48.07	54.39

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE II. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -				
	45.	35.	25.	15.	5.
10	2.06	1.62	2.78	1.73	3.01
11	2.65	2.88	3.21	2.02	2.25
12	3.18	3.57	3.41	2.14	1.49
13	3.53	4.24	3.72	2.36	1.04
14	3.76	4.71	4.14	2.71	1.14
15	3.89	4.88	4.61	3.11	1.90
16	3.88	4.75	4.95	3.69	2.92
17	3.82	4.54	5.02	4.32	3.35
18	3.68	4.36	4.91	4.74	3.78
19	3.45	4.15	4.76	4.74	3.79
20	3.19	3.85	4.63	4.62	3.68
21	3.00	3.53	4.43	4.61	3.79
22	2.89	3.25	4.10	4.43	4.19
23	2.84	3.08	3.77	3.97	4.18
24	2.84	3.03	3.57	3.62	3.93
25	2.89	3.08	3.54	3.53	3.80
26	3.02	3.23	3.69	3.63	3.88
27	3.24	3.46	3.96	3.89	4.12
28	3.47	3.68	4.26	4.20	4.31
29	3.62	3.86	4.53	4.42	4.21
30	3.72	4.07	4.78	4.54	3.99
31	3.79	4.30	5.03	4.64	3.85
32	3.85	4.48	5.28	4.71	3.73
33	3.84	4.47	5.42	4.65	3.56
34	3.71	4.24	5.40	4.42	3.36
35	3.45	3.88	5.15	4.09	3.15
36	3.13	3.45	4.75	3.72	3.05
37	2.77	3.00	4.24	3.38	3.10
38	2.39	2.55	3.70	3.10	3.23
39	2.03	2.12	3.19	2.84	3.29
40	1.67	1.75	2.78	2.60	3.17

TABLE II. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -				
	45.	35.	25.	15.	5.
5	252.0	257.6	267.1	272.7	271.8
6	245.8	251.1	261.3	266.9	266.1
7	238.9	244.2	254.8	260.4	259.4
8	232.5	237.8	248.4	253.6	252.6
9	226.1	231.5	241.9	246.6	245.8
10	221.3	226.1	235.5	239.5	238.8
11	219.1	221.9	229.1	232.5	231.7
12	218.1	218.9	222.7	225.0	224.3
13	217.8	217.1	216.8	217.7	216.8
14	217.4	215.4	211.2	210.4	209.3
15	216.8	213.8	207.2	204.3	203.4
16	216.1	212.3	203.4	198.7	197.9
17	215.1	211.1	201.4	195.6	195.3
18	214.0	210.1	201.7	197.8	197.5
19	213.8	210.0	203.0	200.4	200.0
20	213.9	211.0	206.5	204.0	203.5
21	214.2	212.1	209.6	207.4	206.9
22	214.8	213.3	211.7	210.3	209.8
23	215.4	214.4	213.9	213.2	212.8
24	216.1	215.7	216.0	216.0	215.7
25	217.2	217.7	218.0	218.0	217.8
26	218.3	219.6	219.9	219.9	219.8
27	219.4	221.6	221.8	221.9	221.9
28	220.4	223.6	223.8	223.9	224.0
29	221.5	225.5	225.7	225.8	226.0
30	222.6	227.5	227.7	227.8	228.1

TABLE II. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -				
	45.	35.	25.	15.	5.
31	223.8	229.5	229.6	229.7	230.1
32	225.8	231.2	231.4	231.3	231.5
33	227.7	233.0	233.1	232.8	232.7
34	229.7	234.8	234.9	234.4	233.9
35	231.7	236.6	236.6	235.9	235.1
36	233.8	238.4	238.3	237.4	236.3
37	236.1	240.8	240.7	239.7	238.5
38	238.4	243.2	243.3	242.3	240.9
39	240.8	245.6	245.8	244.8	243.3
40	243.1	248.0	248.3	247.4	245.7
41	245.4	250.4	250.8	249.9	248.1
42	247.7	252.8	253.3	252.5	250.5
43	249.5	254.8	255.7	254.9	252.7
44	251.2	256.3	257.0	256.3	254.3
45	253.0	257.7	258.4	257.8	255.9
46	254.7	259.1	259.8	259.2	257.4
47	256.5	260.5	261.2	260.7	259.0
48	257.1	261.9	262.6	262.1	260.5
49	257.3	261.8	262.6	262.1	260.5
50	257.5	261.6	262.4	261.9	260.5
51	257.7	261.5	262.2	261.8	260.5
52	258.0	261.4	262.0	261.7	260.5
53	258.2	261.3	261.8	261.5	260.5
54	258.4	261.2	261.6	261.4	260.5
55	258.6	261.1	261.4	261.3	260.5

TABLE II. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -				
	45.	35.	25.	15.	5.
1000.0	.14	.13	.13	.11	.11
850.0	1.45	1.47	1.51	1.52	1.52
700.0	2.98	3.04	3.12	3.16	3.15
500.0	5.52	5.63	5.80	5.89	5.86
400.0	7.11	7.25	7.49	7.61	7.58
300.0	9.06	9.24	9.56	9.72	9.69
250.0	10.25	10.46	10.81	10.99	10.96
200.0	11.69	11.91	12.29	12.47	12.44
150.0	13.53	13.75	14.11	14.29	14.25
100.0	16.12	16.30	16.56	16.68	16.63
70.0	18.34	18.50	18.68	18.70	18.70
50.0	20.46	20.58	20.70	20.71	20.71
30.0	23.71	23.80	23.92	23.90	23.89
10.0	30.81	31.00	31.15	31.16	31.18
5.0	35.52	35.94	36.16	36.18	36.18
2.0	42.05	42.63	42.88	42.89	42.84
1.0	47.26	47.94	48.12	48.05	47.98
.4	54.25	54.94	55.16	55.13	55.02
TROP.	10.62	11.68	15.54	16.83	16.54

TABLE III. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR FEBRUARY 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
5	10.62	5.80	6.53	10.68	9.92	7.11	13.77	15.69	11.38	8.59	15.67	11.40	12.78
6	11.70	9.15	5.20	11.84	9.58	6.05	10.33	12.78	7.94	7.13	10.71	10.90	8.36
7	11.26	6.47	5.65	8.00	6.21	5.46	6.86	11.05	9.45	5.30	9.15	23.05	6.60
8	8.27	5.57	5.26	8.21	4.83	4.54	8.34	7.33	6.37	4.39	9.66	19.38	5.34
9	5.31	4.79	5.22	13.21	6.07	7.46	8.34	5.80	5.58	6.62	7.73	12.75	5.18
10	3.58	3.59	4.89	27.94	10.67	9.18	9.75	7.83	8.57	5.44	3.74	12.36	8.35
11	2.61	2.74	3.28	8.17	3.68	3.34	6.84	7.63	6.39	3.21	2.74	4.52	4.01
12	2.26	2.34	2.69	5.69	5.31	4.04	7.16	7.93	6.75	2.76	2.25	3.63	3.38
13	2.02	2.13	2.33	2.41	2.40	3.30	8.76	9.59	6.01	2.42	1.92	3.00	3.10
14	1.74	1.87	2.07	2.07	1.89	2.66	10.59	14.73	15.39	5.39	1.74	2.65	2.76
15	1.45	1.56	1.86	1.98	1.71	2.29	8.81	14.73	7.06	7.35	1.58	2.45	2.50
16	1.22	1.30	1.65	1.93	1.79	1.97	5.81	16.66	4.37	3.66	1.64	2.32	2.24
17	1.07	1.12	1.38	1.78	1.90	1.76	4.62	12.65	3.49	1.79	1.88	2.30	2.09
18	.99	1.00	1.18	1.53	1.90	2.00	3.59	5.37	2.69	1.98	2.21	2.16	1.83
19	.87	.88	1.02	1.23	1.52	2.05	2.90	3.48	3.07	2.75	2.42	1.80	1.50
20	.77	.78	.89	1.03	1.15	1.61	2.54	3.89	4.07	3.08	1.93	1.39	1.26
21	.64	.68	.78	.88	.94	1.12	1.92	3.42	3.29	1.80	1.32	1.20	1.06
22	.52	.56	.66	.74	.83	.90	1.22	1.75	1.67	1.13	1.06	1.05	.84
23	.41	.44	.53	.61	.71	.82	.95	1.14	1.12	1.01	.94	.83	.62
24	.33	.34	.40	.48	.58	.71	.87	1.03	1.04	.93	.76	.61	.41
25	.24	.25	.30	.35	.48	.62	.82	.92	.90	.71	.54	.40	.27
26	.17	.19	.22	.26	.38	.54	.74	.80	.76	.46	.33	.25	.18
27	.12	.13	.16	.20	.30	.45	.62	.69	.59	.29	.23	.18	.12
28	.09	.09	.11	.14	.23	.37	.50	.57	.43	.20	.15	.12	.08
29	.06	.07	.08	.10	.17	.28	.40	.44	.31	.14	.11	.08	.06
30	.04	.05	.06	.07	.12	.21	.29	.31	.23	.09	.07	.06	.04
31	.03	.04	.04	.05	.09	.15	.21	.23	.17	.06	.05	.04	.03
32	.02	.03	.03	.04	.06	.11	.15	.17	.12	.05	.04	.03	.02
33	.02	.02	.02	.03	.04	.07	.11	.12	.09	.04	.03	.02	.02
34	.01	.02	.02	.02	.03	.05	.08	.08	.06	.03	.02	.02	.01
35	.01	.01	.01	.02	.02	.04	.05	.06	.05	.02	.02	.01	.01
36	.01	.01	.01	.01	.02	.03	.04	.04	.03	.02	.01	.01	.01
37	.01	.01	.01	.01	.01	.02	.03	.03	.02	.01	.01	.01	.01
38	.01	.01	.01	.01	.01	.01	.02	.02	.02	.01	.01	.01	.01
39	.00	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
40	.00	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
*TROP.+2	16.51	16.79	17.14	14.70	12.48	11.22	13.32	18.01	16.57	12.41	15.07	22.77	22.33

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE III. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
5	2.73	1.94	2.05	2.78	2.63	2.15	3.30	3.62	2.88	2.41	3.57	2.80	3.02
6	3.13	2.68	1.94	3.16	2.75	2.11	2.89	3.36	2.46	2.30	2.94	2.96	2.49
7	3.33	2.34	2.16	2.62	2.24	2.10	2.37	3.26	2.96	2.07	2.84	5.51	2.34
8	2.93	2.30	2.21	2.86	2.09	2.02	2.89	2.65	2.44	1.99	3.18	5.35	2.22
9	2.43	2.29	2.38	4.39	2.55	2.87	3.10	2.46	2.41	2.67	2.93	4.15	2.36
10	2.12	2.13	2.47	8.89	3.96	3.58	3.73	3.22	3.40	2.51	2.05	4.45	3.42
11	1.95	2.00	2.14	3.63	2.16	2.05	3.17	3.44	3.01	2.01	1.88	2.50	2.38
12	1.97	2.00	2.08	3.07	2.88	2.43	3.55	3.76	3.38	1.98	1.82	2.40	2.35
13	2.01	2.06	2.10	2.05	1.98	2.31	4.52	4.84	3.40	1.97	1.81	2.35	2.45
14	2.01	2.07	2.13	2.05	1.89	2.20	5.74	7.69	7.95	3.52	1.85	2.39	2.51
15	1.98	2.04	2.19	2.17	1.94	2.19	5.49	8.64	4.57	4.84	1.89	2.50	2.59
16	1.95	2.01	2.22	2.32	2.14	2.18	4.42	10.77	3.56	3.11	2.07	2.65	2.66
17	1.97	2.01	2.18	2.42	2.42	2.26	4.12	9.42	3.34	2.25	2.44	2.91	2.79
18	2.04	2.04	2.18	2.42	2.66	2.69	3.94	5.32	3.19	2.67	2.98	3.07	2.83
19	2.05	2.07	2.18	2.34	2.57	3.06	3.86	4.39	4.06	3.78	3.53	3.02	2.75
20	2.08	2.09	2.21	2.32	2.41	2.91	4.01	5.65	5.88	4.71	3.37	2.83	2.72
21	2.04	2.10	2.22	2.33	2.37	2.59	3.71	5.79	5.62	3.54	2.93	2.86	2.69
22	1.98	2.04	2.20	2.31	2.42	2.53	3.06	3.89	3.79	2.92	2.85	2.90	2.56
23	1.90	1.96	2.13	2.26	2.44	2.65	2.90	3.29	3.26	3.05	2.94	2.76	2.33
24	1.83	1.85	1.98	2.15	2.39	2.69	3.08	3.48	3.49	3.23	2.84	2.51	2.04
25	1.70	1.74	1.87	2.00	2.33	2.73	3.33	3.62	3.55	3.01	2.55	2.16	1.81
26	1.59	1.63	1.74	1.86	2.25	2.79	3.47	3.67	3.54	2.52	2.11	1.86	1.61
27	1.49	1.52	1.62	1.76	2.14	2.73	3.40	3.69	3.29	2.14	1.89	1.70	1.49
28	1.40	1.42	1.52	1.63	2.04	2.69	3.28	3.59	2.98	1.90	1.71	1.56	1.40
29	1.33	1.35	1.43	1.53	1.88	2.47	3.12	3.34	2.68	1.73	1.58	1.45	1.33
30	1.27	1.29	1.36	1.44	1.74	2.27	2.81	2.97	2.45	1.58	1.47	1.38	1.28
31	1.22	1.25	1.31	1.37	1.62	2.06	2.56	2.68	2.24	1.48	1.39	1.32	1.24
32	1.19	1.22	1.26	1.31	1.51	1.88	2.28	2.42	2.04	1.41	1.33	1.27	1.21
33	1.16	1.19	1.22	1.28	1.42	1.72	2.05	2.16	1.88	1.36	1.27	1.24	1.19
34	1.15	1.18	1.20	1.26	1.35	1.59	1.86	1.94	1.74	1.32	1.23	1.20	1.17
35	1.14	1.17	1.19	1.24	1.30	1.49	1.71	1.75	1.62	1.29	1.22	1.17	1.15
36	1.13	1.16	1.19	1.22	1.27	1.40	1.58	1.59	1.51	1.26	1.22	1.15	1.14
37	1.12	1.16	1.20	1.19	1.24	1.33	1.48	1.47	1.42	1.24	1.20	1.13	1.13
38	1.11	1.16	1.22	1.18	1.22	1.27	1.40	1.39	1.34	1.23	1.18	1.12	1.13
39	1.10	1.19	1.24	1.20	1.20	1.23	1.33	1.34	1.28	1.21	1.17	1.11	1.12
40	1.10	1.25	1.23	1.22	1.21	1.20	1.27	1.29	1.24	1.23	1.15	1.10	1.11

TABLE III. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
10	16.29	20.29	45.14	82.10	37.97	34.89	54.58	28.43	23.86	29.41	53.54	60.19	55.95
11	9.23	9.86	11.86	17.96	12.40	11.29	15.92	13.56	11.95	11.74	10.72	18.47	17.34
12	8.88	9.57	11.50	13.96	11.09	12.86	17.88	15.75	14.72	12.01	10.30	18.45	16.74
13	8.02	8.75	10.71	11.43	9.94	10.62	19.48	21.27	15.50	12.92	9.75	16.84	15.97
14	6.83	7.53	9.65	10.07	9.35	9.70	18.47	24.03	17.51	14.09	9.51	15.51	14.50
15	5.63	6.19	8.38	9.65	9.17	9.54	17.70	22.60	14.39	13.26	9.71	14.30	12.87
16	4.74	5.07	7.01	8.76	9.23	9.36	15.22	22.04	12.27	11.53	10.39	13.18	11.18
17	4.14	4.24	5.70	7.67	9.03	9.74	14.50	19.37	12.64	11.24	11.27	11.89	9.51
18	3.69	3.64	4.64	6.43	8.12	9.90	13.63	18.31	13.63	12.60	11.76	10.12	7.72
19	3.30	3.20	3.85	5.25	6.68	9.06	13.00	18.97	15.75	13.77	10.98	8.07	6.03
20	2.93	2.84	3.28	4.31	5.32	7.38	11.24	18.41	16.65	12.78	8.95	6.20	4.63
21	2.55	2.49	2.81	3.58	4.24	5.65	8.82	15.52	14.35	9.79	6.70	4.73	3.54
22	2.19	2.13	2.38	3.00	3.44	4.28	6.44	11.06	10.23	6.87	4.89	3.60	2.66
23	1.81	1.75	1.95	2.45	2.81	3.33	4.70	7.47	6.94	4.84	3.57	2.72	1.95
24	1.45	1.39	1.56	1.95	2.29	2.69	3.62	5.27	4.92	3.53	2.63	2.02	1.38
25	1.12	1.09	1.23	1.52	1.87	2.27	2.97	3.98	3.73	2.64	1.94	1.47	.96
26	.85	.83	.96	1.16	1.54	1.95	2.53	3.24	2.99	1.96	1.41	1.04	.67
27	.63	.62	.73	.88	1.25	1.68	2.19	2.76	2.44	1.43	1.02	.74	.47
28	.45	.45	.55	.66	1.00	1.42	1.88	2.36	1.96	1.03	.73	.53	.34
29	.32	.33	.41	.49	.79	1.16	1.57	1.95	1.53	.74	.53	.38	.25
30	.23	.24	.30	.37	.61	.92	1.26	1.55	1.17	.53	.38	.28	.18
31	.16	.17	.22	.27	.46	.71	.98	1.18	.87	.38	.28	.20	.13
32	.11	.12	.15	.20	.34	.53	.74	.88	.65	.28	.21	.15	.09
33	.08	.08	.11	.15	.25	.39	.55	.64	.47	.21	.15	.11	.06
34	.05	.06	.08	.10	.18	.29	.40	.45	.34	.15	.11	.07	.04
35	.04	.04	.05	.07	.13	.21	.29	.32	.24	.11	.08	.05	.03
36	.03	.03	.04	.05	.09	.15	.21	.22	.17	.08	.05	.04	.02
37	.02	.02	.03	.04	.06	.10	.15	.16	.12	.05	.04	.02	.01
38	.01	.02	.02	.03	.04	.07	.10	.11	.08	.04	.02	.02	.01
39	.01	.01	.01	.02	.03	.05	.07	.07	.06	.03	.02	.01	.01
40	.01	.01	.01	.01	.02	.03	.05	.05	.04	.02	.01	.01	.00
*TROP.+2	65.06	65.96	72.21	64.77	55.59	49.52	58.53	89.98	78.13	59.30	73.59	112.76	101.22

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE III. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
10	4.52	5.46	12.06	9.50	10.32	8.43	6.32	4.81	5.51	8.24	15.26	12.93	13.33
11	3.22	3.30	3.72	3.09	3.89	3.33	2.92	2.81	2.82	3.71	3.77	4.67	4.69
12	3.78	3.87	4.06	3.59	3.90	4.18	4.06	3.70	3.52	4.17	4.19	5.06	5.02
13	3.96	4.08	4.45	3.91	4.26	4.24	3.61	3.77	3.68	4.45	4.76	5.25	5.13
14	3.90	4.02	4.58	4.33	4.74	4.41	3.61	3.71	3.77	4.83	5.27	5.60	5.20
15	3.78	3.88	4.48	4.73	5.07	4.76	3.94	3.18	3.50	5.21	5.72	5.69	5.11
16	3.73	3.76	4.25	4.62	5.11	5.00	4.34	3.10	3.80	5.33	5.96	5.54	4.88
17	3.74	3.67	4.02	4.39	4.91	5.24	4.60	3.68	4.03	5.47	5.86	5.24	4.57
18	3.75	3.61	3.83	4.20	4.63	5.16	4.54	4.52	4.67	5.65	5.52	4.85	4.21
19	3.78	3.59	3.70	4.09	4.41	4.85	4.61	4.74	4.91	5.46	5.11	4.49	3.87
20	3.86	3.63	3.63	4.03	4.36	4.62	4.50	5.04	4.83	5.11	4.79	4.18	3.56
21	3.97	3.71	3.62	4.00	4.29	4.56	4.45	5.07	4.76	4.95	4.61	3.85	3.31
22	4.15	3.81	3.63	4.00	4.13	4.41	4.47	5.12	4.90	4.95	4.32	3.52	3.15
23	4.29	3.92	3.68	4.00	3.98	4.08	4.39	5.27	5.07	4.59	3.88	3.32	3.13
24	4.39	4.03	3.78	4.04	3.88	3.77	4.04	4.94	4.71	4.03	3.57	3.33	3.20
25	4.51	4.18	3.96	4.14	3.89	3.66	3.67	4.34	4.19	3.82	3.57	3.52	3.36
26	4.67	4.33	4.17	4.25	3.96	3.69	3.51	4.04	4.00	4.01	3.83	3.76	3.51
27	4.79	4.48	4.37	4.34	4.09	3.78	3.56	4.05	4.10	4.42	4.18	3.97	3.68
28	4.87	4.61	4.55	4.46	4.28	3.94	3.74	4.20	4.37	4.85	4.43	4.12	3.85
29	4.91	4.71	4.68	4.60	4.51	4.12	3.96	4.44	4.69	5.16	4.66	4.33	3.96
30	4.93	4.81	4.76	4.77	4.78	4.37	4.19	4.68	4.92	5.39	4.95	4.53	3.99
31	4.89	4.88	4.80	4.92	5.00	4.66	4.45	4.89	5.06	5.63	5.23	4.55	3.95
32	4.73	4.74	4.77	5.02	5.18	4.93	4.69	5.03	5.18	5.87	5.39	4.48	3.82
33	4.46	4.52	4.66	5.03	5.30	5.20	4.89	5.11	5.25	5.93	5.45	4.37	3.61
34	4.09	4.20	4.44	4.83	5.32	5.49	5.04	5.17	5.22	5.78	5.34	4.24	3.36
35	3.65	3.84	4.15	4.56	5.20	5.62	5.15	5.26	5.11	5.52	5.01	4.08	3.04
36	3.21	3.61	3.87	4.29	4.94	5.59	5.28	5.39	5.03	5.00	4.60	3.90	2.70
37	2.77	3.56	3.79	4.64	4.61	5.61	5.50	5.50	4.97	4.32	4.17	3.66	2.34
38	2.33	3.27	4.00	8.80	4.22	5.59	5.96	5.46	4.94	3.61	3.72	3.33	1.97
39	1.94	2.44	4.49	10.52	3.83	5.38	6.07	5.30	5.03	2.99	3.38	2.91	1.64
40	1.64	2.23	5.24	6.06	3.95	4.99	5.49	5.14	5.67	2.66	3.80	2.49	1.44

TABLE III. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
5	244.1	245.0	251.3	260.9	268.3	272.8	273.4	273.3	273.3	271.1	263.3	253.3	247.7
6	238.4	239.0	245.1	254.8	262.3	266.7	267.5	267.5	267.8	265.0	257.0	246.8	241.3
7	233.0	233.3	238.7	247.9	255.3	259.8	261.0	261.2	261.5	258.4	250.3	240.1	234.8
8	228.4	228.8	233.4	241.4	248.4	252.8	254.3	254.6	255.0	251.8	243.8	233.5	228.8
9	225.6	225.8	228.2	235.1	241.5	245.7	247.4	247.7	248.1	244.9	237.6	227.0	223.0
10	226.3	226.2	225.6	229.4	234.7	238.6	240.4	240.6	241.1	238.1	231.8	221.9	219.4
11	227.7	227.4	224.9	224.9	228.1	231.8	233.3	233.3	234.0	231.5	226.7	219.3	218.7
12	228.9	228.4	224.8	221.4	222.1	224.7	226.0	225.7	226.5	224.8	222.1	218.2	218.8
13	229.9	229.2	224.9	219.7	217.2	218.0	218.6	218.2	219.0	218.0	217.8	218.1	219.5
14	230.5	229.8	225.0	218.1	213.0	211.7	211.2	210.6	211.3	211.3	213.6	217.8	219.8
15	231.0	230.2	225.1	217.3	210.5	206.9	205.1	204.0	204.7	205.6	210.5	217.1	219.7
16	231.5	230.5	225.2	216.5	208.4	202.7	199.6	198.1	198.7	200.3	207.4	216.3	219.6
17	231.7	230.6	225.3	216.4	207.3	199.9	195.6	193.8	194.2	196.8	205.4	215.7	219.2
18	231.9	230.6	225.4	217.0	208.4	201.4	197.0	195.1	195.5	197.9	204.8	215.1	218.7
19	232.1	230.7	225.6	217.7	209.6	203.0	198.6	196.8	197.2	199.5	205.1	215.1	218.5
20	232.2	230.7	225.9	218.9	212.0	206.1	202.2	200.6	201.3	203.3	207.6	215.5	218.4
21	232.5	230.8	226.3	220.2	214.3	209.3	205.7	204.4	205.3	206.9	210.0	216.1	218.4
22	233.0	231.5	227.2	221.7	216.4	212.0	208.9	207.7	208.3	209.4	211.7	217.1	218.5
23	233.6	232.1	228.1	223.3	218.6	214.8	212.0	210.9	211.2	211.9	213.5	218.1	218.6
24	234.1	232.7	229.0	224.8	220.7	217.5	215.1	214.2	214.2	214.4	215.3	219.1	218.9
25	235.3	234.0	230.4	226.6	222.8	219.8	217.4	216.5	216.5	216.7	217.4	220.4	220.0
26	236.7	235.5	232.0	228.4	224.9	222.1	219.7	218.6	218.8	218.9	219.6	221.8	221.0
27	238.1	237.0	233.6	230.2	226.9	224.3	222.0	220.8	221.1	221.1	221.7	223.1	222.1
28	239.6	238.5	235.2	232.1	229.0	226.5	224.2	223.0	223.4	223.4	223.8	224.5	223.2
29	241.0	240.0	236.8	233.9	231.1	228.8	226.5	225.2	225.6	225.6	226.0	225.9	224.2
30	242.4	241.6	238.4	235.8	233.2	231.0	228.7	227.3	227.9	227.8	228.1	227.2	225.3

TABLE III. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
31	243.8	243.1	239.9	237.6	235.3	233.2	231.0	229.5	230.2	230.1	230.2	228.6	226.4
32	245.3	244.6	241.5	239.4	237.2	235.0	232.5	230.8	231.7	232.0	231.8	229.9	227.9
33	247.6	246.8	243.5	240.9	238.3	235.9	233.3	231.6	232.6	233.8	233.2	231.1	229.5
34	250.1	249.0	245.5	242.5	239.4	236.8	234.2	232.4	233.6	235.5	234.5	232.3	231.1
35	252.6	251.2	247.4	244.0	240.5	237.7	235.0	233.2	234.6	237.3	235.8	233.5	232.7
36	255.1	253.4	249.4	245.5	241.6	238.6	235.9	234.0	235.5	239.1	237.2	234.7	234.3
37	257.6	255.6	251.4	247.1	242.9	240.1	237.8	236.1	237.6	240.9	239.3	236.6	236.1
38	259.5	257.5	253.3	249.1	245.1	242.5	240.4	238.8	240.1	242.8	241.8	238.6	237.9
39	261.2	259.4	255.3	251.1	247.2	244.9	243.0	241.5	242.6	244.8	244.2	240.5	239.6
40	263.0	261.2	257.2	253.1	249.4	247.3	245.7	244.3	245.1	246.7	246.6	242.5	241.4
41	264.7	263.1	259.1	255.2	251.5	249.7	248.3	247.0	247.5	248.6	249.0	244.5	243.1
42	266.4	264.9	261.1	257.2	253.7	252.1	250.9	249.7	250.0	250.5	251.4	246.4	244.9
43	268.1	266.8	263.0	259.2	255.8	254.5	253.5	252.4	252.5	252.4	253.8	248.3	246.6
44	269.9	268.6	265.0	261.1	257.8	256.5	255.6	254.7	254.5	253.8	255.5	250.1	248.3
45	271.0	269.6	265.9	262.1	259.1	258.0	257.5	256.8	256.4	255.1	257.2	251.8	250.0
46	271.4	270.2	266.7	263.2	260.4	259.6	259.4	259.0	258.3	256.3	258.8	253.6	251.7
47	271.8	270.8	267.5	264.2	261.8	261.2	261.2	261.1	260.1	257.6	260.4	255.3	253.4
48	272.2	271.3	268.3	265.3	263.1	262.7	263.1	263.2	262.0	258.8	262.0	257.1	255.0
49	272.6	271.9	269.1	266.3	264.5	264.3	264.6	264.7	263.6	260.0	263.1	257.9	255.5
50	273.0	272.4	269.6	266.8	264.8	264.7	265.2	265.6	264.6	260.9	263.6	258.5	256.0
51	272.5	271.7	269.0	266.5	264.9	265.0	265.8	266.5	265.6	261.9	264.0	259.0	256.5
52	271.5	270.8	268.4	266.3	265.0	265.4	266.4	267.4	266.6	262.8	264.4	259.6	257.0
53	270.6	269.8	267.7	266.0	265.1	265.8	267.1	268.3	267.6	263.7	264.9	260.2	257.5
54	269.7	268.9	267.1	265.8	265.2	266.1	267.7	269.2	268.6	264.6	265.3	260.7	258.0
55	268.7	268.0	266.5	265.5	265.3	266.5	268.3	270.0	269.6	265.6	265.7	261.3	258.4

TABLE III. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -												
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.
1000.0	-.05	-.06	.01	.10	.14	.12	.11	.10	.10	.13	.13	.13	.11
850.0	1.23	1.22	1.31	1.45	1.53	1.53	1.52	1.51	1.52	1.53	1.50	1.46	1.39
700.0	2.72	2.71	2.84	3.03	3.14	3.17	3.16	3.16	3.16	3.17	3.09	3.00	2.90
500.0	5.18	5.19	5.37	5.64	5.82	5.90	5.90	5.89	5.89	5.88	5.73	5.55	5.40
400.0	6.74	6.75	6.97	7.29	7.51	7.61	7.62	7.62	7.62	7.59	7.39	7.15	6.97
300.0	8.67	8.68	8.93	9.31	9.58	9.71	9.73	9.73	9.74	9.68	9.42	9.11	8.90
250.0	9.87	9.89	10.14	10.53	10.82	10.97	11.01	11.01	11.02	10.94	10.66	10.30	10.08
200.0	11.36	11.38	11.61	11.99	12.29	12.45	12.49	12.49	12.50	12.42	12.13	11.74	11.51
150.0	13.30	13.31	13.51	13.85	14.11	14.27	14.31	14.31	14.32	14.25	13.97	13.59	13.37
100.0	16.05	16.05	16.20	16.43	16.60	16.69	16.71	16.69	16.71	16.66	16.47	16.18	15.99
70.0	18.46	18.46	18.54	18.69	18.79	18.82	18.78	18.76	18.74	18.72	18.62	18.43	18.29
50.0	20.76	20.74	20.78	20.86	20.90	20.86	20.79	20.75	20.74	20.73	20.67	20.56	20.45
30.0	24.26	24.23	24.21	24.22	24.18	24.09	23.96	23.91	23.90	23.91	23.88	23.84	23.74
10.0	32.02	31.96	31.84	31.76	31.63	31.45	31.25	31.14	31.14	31.13	31.10	31.10	30.94
5.0	37.10	36.96	36.76	36.64	36.51	36.31	36.09	36.00	35.96	35.97	35.94	35.85	35.72
2.0	44.32	44.12	43.82	43.61	43.39	43.14	42.89	42.77	42.78	42.82	42.73	42.49	42.29
1.0	50.03	49.81	49.44	49.13	48.81	48.52	48.24	48.01	48.15	48.30	48.11	47.79	47.57
.4	57.54	57.30	56.86	56.49	56.10	55.80	55.50	55.16	55.36	55.50	55.29	54.88	54.54
TROP.	8.98	9.19	10.03	11.93	13.96	15.97	16.90	16.85	16.98	16.64	13.94	10.60	10.14

TABLE IV. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR MARCH 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
5	12.78	13.75	18.00	16.93	17.82	10.53
6	9.15	14.35	38.11	11.31	9.67	11.38
7	7.83	10.81	22.41	7.26	7.24	2.52
8	7.72	10.48	13.17	4.61	6.10	2.30
9	5.17	10.04	8.52	4.50	5.66	2.76
10	4.55	5.90	9.27	6.54	14.28	11.37
11	3.93	4.55	4.52	7.29	11.27	36.97
12	3.45	3.98	3.11	4.16	9.13	43.95
13	2.93	3.20	2.54	2.94	5.13	16.15
14	2.51	2.66	2.15	1.64	3.61	5.08
15	2.19	2.40	2.06	1.43	3.48	3.68
16	1.96	2.21	2.07	1.46	2.33	2.92
17	1.71	1.99	2.12	1.60	1.70	4.55
18	1.47	1.69	2.03	1.92	1.84	3.32
19	1.26	1.43	1.86	2.18	2.28	2.26
20	1.07	1.22	1.47	2.01	2.85	3.09
21	.88	1.06	1.18	1.44	2.47	3.39
22	.66	.82	.98	1.07	1.46	1.99
23	.46	.54	.76	.89	1.00	1.15
24	.31	.34	.55	.74	.87	1.00
25	.21	.23	.36	.54	.74	.88
26	.15	.17	.24	.34	.51	.72
27	.10	.12	.16	.22	.33	.55
28	.07	.08	.11	.15	.23	.42
29	.05	.06	.08	.11	.17	.29
30	.04	.05	.06	.07	.12	.22
31	.03	.03	.04	.05	.09	.17
32	.02	.03	.03	.04	.07	.14
33	.02	.02	.02	.03	.05	.10
34	.01	.02	.02	.03	.04	.08
35	.01	.02	.02	.02	.03	.06
36	.01	.01	.01	.02	.02	.04
37	.01	.01	.01	.01	.02	.03
38	.01	.01	.01	.01	.01	.02
39	.01	.01	.01	.01	.01	.02
40	.01	.01	.01	.01	.01	.01
*TROP.+2	21.08	21.52	16.99	11.68	13.32	16.05

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE IV. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
5	3.03	3.16	3.88	3.75	3.97	2.76
6	?.62	3.54	8.01	3.03	2.74	3.07
7	2.57	3.13	5.49	2.45	2.46	1.51
8	2.73	3.36	3.92	2.03	2.33	1.52
9	2.31	3.56	3.12	2.13	2.42	1.70
10	2.31	2.69	3.62	2.84	5.07	4.30
11	2.31	2.52	2.46	3.30	4.51	12.97
12	2.33	2.55	2.16	2.48	4.24	16.57
13	2.31	2.46	2.09	2.18	3.01	7.09
14	2.30	2.42	2.07	1.76	2.62	3.29
15	2.32	2.50	2.20	1.76	2.78	2.86
16	2.38	2.61	2.41	1.91	2.38	2.73
17	2.40	2.69	2.67	2.16	2.18	4.19
18	2.41	2.66	2.88	2.65	2.54	3.64
19	2.42	2.65	3.01	3.23	3.28	3.24
20	2.41	2.65	2.88	3.44	4.44	4.73
21	2.36	2.68	2.78	3.10	4.55	5.86
22	2.19	2.51	2.74	2.86	3.49	4.33
23	1.96	2.15	2.60	2.83	3.05	3.34
24	1.75	1.86	2.36	2.82	3.13	3.42
25	1.60	1.69	2.04	2.56	3.13	3.52
26	1.50	1.58	1.81	2.15	2.72	3.43
27	1.41	1.48	1.65	1.89	2.33	3.21
28	1.34	1.40	1.53	1.73	2.10	2.98
29	1.28	1.34	1.44	1.59	1.94	2.61
30	1.24	1.30	1.37	1.49	1.79	2.45
31	1.21	1.27	1.33	1.41	1.67	2.29
32	1.19	1.25	1.29	1.36	1.58	2.20
33	1.18	1.24	1.26	1.33	1.49	2.06
34	1.17	1.23	1.24	1.31	1.43	1.96
35	1.16	1.22	1.22	1.29	1.38	1.84
36	1.15	1.22	1.21	1.27	1.34	1.71
37	1.15	1.22	1.20	1.25	1.30	1.61
38	1.16	1.22	1.19	1.23	1.27	1.53
39	1.17	1.22	1.18	1.24	1.25	1.46
40	1.18	1.22	1.18	1.24	1.23	1.40

TABLE IV. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
10	13.76	18.41	21.60	18.95	36.54	59.72
11	11.89	16.27	15.44	14.48	27.23	38.48
12	11.34	15.52	13.20	11.68	17.92	32.18
13	10.58	14.15	11.66	8.95	13.69	22.60
14	9.29	12.65	10.63	7.66	11.00	16.09
15	7.97	11.21	10.08	6.98	9.58	12.21
16	6.72	9.73	9.72	7.09	8.28	10.11
17	5.57	8.12	9.21	7.70	8.14	9.29
18	4.58	6.52	8.32	8.33	9.21	9.79
19	3.77	5.14	7.06	8.35	10.77	11.40
20	3.09	4.05	5.63	7.38	11.31	12.69
21	2.49	3.19	4.39	5.88	9.86	11.81
22	1.95	2.44	3.41	4.47	7.37	9.03
23	1.45	1.77	2.61	3.37	5.23	6.41
24	1.04	1.24	1.95	2.55	3.81	4.64
25	.74	.88	1.42	1.90	2.85	3.51
26	.53	.63	1.02	1.38	2.14	2.76
27	.38	.46	.72	.99	1.57	2.20
28	.28	.34	.51	.72	1.15	1.71
29	.20	.25	.37	.53	.84	1.29
30	.15	.18	.27	.39	.61	.97
31	.11	.13	.20	.29	.45	.74
32	.08	.10	.14	.21	.34	.58
33	.06	.07	.10	.15	.25	.46
34	.04	.05	.07	.11	.18	.36
35	.03	.03	.05	.08	.13	.28
36	.02	.02	.04	.06	.09	.21
37	.01	.02	.03	.04	.06	.15
38	.01	.01	.02	.03	.05	.11
39	.01	.01	.01	.02	.03	.08
40	.01	.01	.01	.01	.02	.05
*TROP.+2	70.53	87.33	70.74	46.12	58.87	68.09

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE IV. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
10	3.04	3.21	3.14	2.64	2.57	2.57
11	2.96	3.49	3.13	2.91	2.66	1.71
12	3.16	3.92	3.69	3.26	2.75	1.49
13	3.29	4.27	4.15	3.64	2.97	1.52
14	3.34	4.50	4.51	3.97	3.25	1.81
15	3.31	4.55	4.66	4.30	3.63	2.58
16	3.22	4.37	4.62	4.63	3.99	2.81
17	3.10	4.09	4.45	4.61	4.36	2.80
18	2.99	3.79	4.20	4.43	4.69	3.34
19	2.92	3.51	3.95	4.20	4.71	4.06
20	2.88	3.25	3.73	3.99	4.55	4.40
21	2.89	3.08	3.58	3.90	4.40	4.29
22	2.96	3.01	3.46	3.85	4.42	4.23
23	3.06	3.09	3.40	3.71	4.49	4.42
24	3.17	3.27	3.47	3.56	4.30	4.40
25	3.26	3.46	3.69	3.55	4.05	4.05
26	3.32	3.58	3.98	3.73	4.07	3.84
27	3.39	3.70	4.16	4.05	4.31	3.86
28	3.48	3.82	4.28	4.35	4.58	3.95
29	3.55	3.87	4.41	4.60	4.78	4.02
30	3.58	3.86	4.49	4.84	4.89	4.08
31	3.55	3.79	4.45	4.99	4.95	4.08
32	3.48	3.61	4.32	4.94	5.00	4.10
33	3.37	3.33	4.08	4.68	5.01	4.15
34	3.34	2.89	3.75	4.37	4.90	4.19
35	4.27	2.44	3.35	4.07	4.64	4.16
36	11.71	2.14	2.94	3.74	4.27	4.10
37	14.81	1.97	2.54	3.32	3.88	4.01
38	8.68	1.88	2.18	2.89	3.52	3.89
39	10.30	1.74	1.94	2.52	3.18	3.74
40	6.51	1.56	1.97	2.24	2.85	3.54

TABLE IV. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
5	243.1	249.3	260.0	269.1	273.1	274.2
6	236.6	242.7	253.4	263.1	266.8	268.3
7	230.2	235.9	246.2	256.4	260.1	262.1
8	224.3	229.8	239.2	249.7	253.3	255.7
9	219.1	223.6	232.4	242.8	246.3	249.1
10	216.8	219.5	226.5	236.1	239.3	242.4
11	217.2	218.1	221.9	229.5	232.3	235.0
12	218.0	217.9	218.3	222.8	225.0	227.3
13	219.1	218.5	216.2	216.6	217.8	219.6
14	219.4	218.7	214.2	210.6	210.8	211.8
15	219.6	218.6	212.6	206.1	205.0	205.0
16	219.7	218.4	210.9	201.8	199.7	198.9
17	219.5	218.0	210.0	199.3	196.3	194.6
18	219.3	217.5	209.5	199.6	197.2	196.0
19	219.2	217.3	209.7	200.9	198.9	198.0
20	219.2	217.2	210.8	204.3	202.6	202.0
21	219.4	217.3	212.0	207.4	206.2	205.8
22	219.7	217.5	213.2	209.8	209.3	209.0
23	220.1	217.8	214.5	212.3	212.5	212.1
24	220.8	218.2	215.8	214.8	215.5	215.2
25	222.0	219.1	217.7	217.4	218.2	218.0
26	223.3	219.9	219.5	220.1	220.9	220.7
27	224.6	220.8	221.4	222.8	223.6	223.5
28	225.8	221.7	223.3	225.5	226.3	226.2
29	227.1	222.6	225.1	228.1	229.0	228.9
30	228.3	223.5	227.0	230.8	231.7	231.7

TABLE IV. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
31	229.6	224.5	226.9	233.5	234.4	234.4
32	230.9	226.8	231.2	235.4	236.3	236.3
33	232.3	229.1	233.5	237.2	238.1	238.0
34	233.6	231.4	235.9	239.0	239.8	239.7
35	234.9	233.7	238.2	240.8	241.5	241.4
36	236.6	236.0	240.6	242.7	243.2	243.1
37	238.7	238.4	243.3	245.4	245.9	245.8
38	240.8	240.7	245.9	248.2	248.8	248.7
39	242.9	243.0	248.6	251.0	251.7	251.7
40	245.0	245.3	251.3	253.8	254.6	254.6
41	247.0	247.7	254.0	256.7	257.5	257.5
42	249.1	250.0	256.7	259.5	260.4	260.4
43	250.8	251.6	258.8	262.2	263.3	263.4
44	252.4	253.2	260.0	263.3	264.4	264.6
45	254.0	254.8	261.2	264.3	265.4	265.6
46	255.6	256.4	262.4	265.4	266.3	266.6
47	257.3	258.0	263.6	266.4	267.3	267.5
48	257.9	258.7	264.8	267.4	268.2	268.5
49	258.1	258.8	264.5	267.5	268.4	268.7
50	258.2	258.9	264.2	267.0	267.8	268.2
51	258.3	259.0	263.9	266.5	267.3	267.6
52	258.5	259.0	263.6	266.0	266.8	267.1
53	258.6	259.1	263.3	265.5	266.2	266.5
54	258.8	259.2	263.0	264.9	265.7	266.0
55	258.9	259.3	262.7	264.4	265.1	265.4

TABLE IV. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -					
	55.	45.	35.	25.	15.	5.
1000.0	.12	.13	.14	.14	.10	.08
850.0	1.39	1.43	1.49	1.53	1.52	1.50
700.0	2.87	2.95	3.06	3.15	3.17	3.15
500.0	5.32	5.46	5.67	5.84	5.90	5.88
400.0	6.86	7.04	7.31	7.54	7.62	7.61
300.0	8.76	8.97	9.31	9.62	9.72	9.74
250.0	9.93	10.16	10.52	10.87	10.99	11.03
200.0	11.35	11.58	11.97	12.35	12.47	12.53
150.0	13.20	13.43	13.80	14.16	14.29	14.36
100.0	15.82	16.05	16.33	16.59	16.69	16.75
70.0	18.11	18.32	18.52	18.67	18.73	18.75
50.0	20.28	20.48	20.60	20.69	20.73	20.75
30.0	23.59	23.75	23.81	23.86	23.90	23.91
10.0	30.87	30.90	30.99	31.11	31.21	31.22
5.0	35.53	35.52	35.83	36.08	36.16	36.21
2.0	42.09	42.10	42.60	42.96	43.07	43.13
1.0	47.36	47.42	48.01	48.36	48.46	48.51
.4	54.44	54.51	55.15	55.56	55.75	55.79
TROP.	9.68	10.25	12.19	15.64	16.51	16.81

TABLE V. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR APRIL 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
5	4.46	5.30	6.63	5.17	9.22	9.10		
6	4.30	4.10	4.39	4.98	6.86	8.18		
7	3.85	7.38	4.67	4.22	5.40	14.36	20.24	
8	4.50	4.42	4.20	3.56	4.52	13.76	20.36	
9	4.18	5.31	3.54	3.61	4.27	11.87	58.38	7.03
10	3.36	8.32	2.90	2.73	12.71	26.07	51.34	21.44
11	2.58	4.92	4.50	4.06	11.87	20.61	29.61	37.63
12	2.24	3.33	4.78	12.11	7.03	15.53	29.58	27.44
13	2.03	2.87	2.59	15.47	6.03	12.77	26.86	16.09
14	1.86	2.09	2.03	6.41	5.09	19.50	20.78	15.61
15	1.77	1.79	1.39	1.83	6.57	13.16	20.01	11.24
16	1.61	1.67	1.40	1.32	7.36	13.87	13.19	6.23
17	1.42	1.59	1.51	1.36	6.06	11.89	8.40	3.85
18	1.21	1.44	1.58	1.50	1.98	4.68	4.33	1.59
19	1.01	1.21	1.50	1.66	1.77	1.98	2.43	1.90
20	.85	1.00	1.20	1.56	2.08	2.32	2.28	2.06
21	.69	.83	.97	1.26	2.03	2.54	2.45	1.97
22	.53	.69	.79	.96	1.44	1.85	1.81	1.61
23	.39	.56	.66	.79	1.00	1.19	1.17	1.27
24	.29	.44	.52	.66	.81	.96	.93	1.06
25	.22	.37	.43	.61	.74	.87	.83	.89
26	.16	.29	.36	.55	.67	.77	.68	.73
27	.12	.23	.30	.45	.58	.66	.55	.60
28	.09	.17	.23	.36	.49	.54	.43	.49
29	.06	.12	.18	.25	.40	.45	.32	.39
30	.04	.09	.13	.19	.30	.36	.26	.27
31	.03	.06	.09	.14	.22	.28	.19	.26
32	.03	.04	.07	.10	.16	.21	.15	.17
33	.02	.03	.05	.07	.11	.15	.11	.15
34	.02	.02	.04	.05	.08	.11	.08	.11
35	.02	.02	.03	.04	.05	.08	.06	.08
36	.01	.01	.02	.03	.04	.06	.05	.07
37	.01	.01	.02	.02	.02	.04	.04	.05
38	.01	.01	.01	.01	.02	.03	.03	.04
39	.01	.01	.01	.01	.01	.02	.02	.03
40	.01	.01	.01	.01	.01	.02	.02	.02
*TROP.+2	15.73	14.59	12.47	12.28	13.70	16.17	16.43	14.42

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE V. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
5	1.72	1.85	2.08	1.83	2.50	2.50		
6	1.77	1.73	1.79	1.91	2.26	2.49		
7	1.78	2.49	1.94	1.85	2.09	3.91		
8	2.03	1.96	1.94	1.79	2.01	4.11	5.79	
9	2.09	2.34	1.89	1.90	2.07	3.97	15.78	1.76
10	2.00	3.37	1.81	1.76	4.68	8.48	15.29	7.19
11	1.89	2.53	2.45	2.28	4.65	7.49	10.28	12.68
12	1.90	2.25	2.71	5.34	3.47	6.46	11.45	10.62
13	1.95	2.23	2.07	7.20	3.39	6.20	11.57	7.54
14	2.02	2.06	1.97	3.80	3.29	9.76	10.60	7.97
15	2.13	2.07	1.78	1.95	4.40	7.69	11.43	6.65
16	2.20	2.17	1.91	1.81	5.49	9.34	8.68	4.62
17	2.22	2.30	2.15	1.98	5.07	9.23	6.77	3.55
18	2.22	2.37	2.42	2.29	2.63	4.66	4.51	2.30
19	2.19	2.35	2.58	2.69	2.77	2.97	3.38	2.88
20	2.16	2.31	2.50	2.89	3.51	3.81	3.76	3.44
21	2.09	2.27	2.43	2.81	3.91	4.65	4.53	3.80
22	1.99	2.23	2.38	2.65	3.44	4.16	4.08	3.74
23	1.85	2.18	2.36	2.62	3.03	3.43	3.39	3.57
24	1.74	2.08	2.27	2.61	2.97	3.35	3.28	3.53
25	1.66	2.07	2.23	2.75	3.13	3.51	3.38	3.53
26	1.57	2.00	2.20	2.84	3.29	3.64	3.30	3.42
27	1.48	1.91	2.17	2.80	3.33	3.63	3.20	3.37
28	1.40	1.77	2.07	2.66	3.30	3.54	3.00	3.29
29	1.34	1.64	1.98	2.36	3.17	3.46	2.78	3.11
30	1.29	1.54	1.82	2.20	2.95	3.31	2.65	2.73
31	1.25	1.45	1.69	2.03	2.67	3.14	2.43	2.95
32	1.23	1.37	1.58	1.87	2.42	2.85	2.29	2.49
33	1.21	1.32	1.50	1.73	2.16	2.55	2.13	2.51
34	1.21	1.27	1.43	1.60	1.94	2.31	1.99	2.29
35	1.22	1.24	1.37	1.49	1.75	2.10	1.87	2.15
36	1.22	1.22	1.31	1.40	1.57	1.91	1.75	2.04
37	1.23	1.23	1.27	1.33	1.45	1.75	1.65	1.94
38	1.24	1.23	1.25	1.28	1.37	1.62	1.56	1.82
39	1.25	1.22	1.24	1.24	1.31	1.52	1.50	1.71
40	1.27	1.23	1.24	1.23	1.26	1.43	1.45	1.64

TABLE V. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
10	8.04	17.91	11.53	2.42	35.52	14.91	53.11	44.39
11	7.40	12.72	9.53	8.57	25.48	14.17	32.28	35.51
12	6.89	9.09	8.48	13.24	13.90	13.44	24.73	26.62
13	6.40	8.06	7.45	13.46	14.10	14.22	21.43	24.94
14	5.95	7.27	6.39	10.33	12.48	15.22	24.54	19.00
15	5.51	6.63	5.67	7.52	14.35	17.65	24.18	13.42
16	4.95	6.09	5.58	6.22	12.94	16.31	19.47	9.07
17	4.30	5.50	5.74	5.91	10.58	14.38	14.44	6.11
18	3.65	4.80	5.72	6.05	9.27	11.37	11.46	4.64
19	3.05	4.03	5.26	6.05	8.96	9.99	9.97	4.35
20	2.54	3.31	4.46	5.57	8.88	9.92	9.57	4.67
21	2.08	2.71	3.64	4.69	7.97	9.23	8.69	4.95
22	1.64	2.20	2.93	3.75	6.21	7.51	6.94	4.74
23	1.25	1.77	2.35	2.99	4.53	5.62	5.10	4.17
24	.95	1.42	1.88	2.45	3.38	4.27	3.80	3.58
25	.72	1.15	1.55	2.12	2.69	3.43	2.98	3.16
26	.54	.95	1.30	1.87	2.26	2.90	2.45	2.82
27	.41	.77	1.08	1.63	1.94	2.52	2.07	2.53
28	.31	.61	.89	1.36	1.67	2.20	1.76	2.20
29	.23	.48	.72	1.09	1.42	1.91	1.52	1.82
30	.17	.37	.57	.86	1.16	1.64	1.31	1.49
31	.12	.28	.44	.67	.92	1.36	1.12	1.18
32	.09	.21	.33	.50	.71	1.10	.95	.95
33	.06	.15	.24	.37	.52	.87	.79	.74
34	.05	.11	.18	.27	.38	.66	.64	.57
35	.03	.08	.13	.19	.27	.48	.49	.45
36	.03	.05	.09	.14	.19	.34	.36	.36
37	.02	.04	.06	.10	.14	.24	.27	.29
38	.02	.03	.05	.07	.09	.17	.19	.22
39	.01	.02	.03	.05	.06	.12	.14	.16
40	.01	.01	.02	.03	.04	.09	.10	.11
*TROP.+2	48.58	50.06	46.57	47.17	57.42	67.92	65.32	46.15

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE V. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
10	2.66	2.85	2.98	1.90	1.86	1.55	1.38	1.10
11	2.78	2.82	2.90	2.36	2.25	1.53	.96	1.01
12	2.93	3.01	3.00	2.54	2.38	1.50	.88	.93
13	3.05	3.28	3.17	2.74	2.53	1.66	.97	1.56
14	3.11	3.55	3.40	2.89	2.75	1.84	1.20	1.49
15	3.12	3.61	3.60	3.21	3.11	1.89	1.52	1.65
16	3.07	3.57	3.76	3.72	3.34	2.12	1.58	2.04
17	3.01	3.49	3.83	4.12	3.41	2.52	2.27	2.22
18	2.97	3.37	3.77	4.04	3.78	3.26	2.63	2.26
19	2.94	3.28	3.69	3.87	4.28	3.84	3.23	2.33
20	2.95	3.22	3.64	3.75	4.54	4.21	3.87	2.47
21	2.99	3.18	3.63	3.69	4.31	4.21	3.97	2.68
22	3.02	3.15	3.59	3.66	4.10	4.09	3.86	2.92
23	3.05	3.13	3.53	3.61	4.00	4.12	3.82	3.14
24	3.07	3.14	3.49	3.51	3.84	4.11	3.78	3.33
25	3.11	3.19	3.56	3.48	3.57	3.93	3.64	3.56
26	3.18	3.28	3.66	3.51	3.38	3.79	3.59	3.81
27	3.28	3.43	3.76	3.64	3.33	3.84	3.73	4.14
28	3.39	3.63	3.91	3.84	3.40	4.01	4.04	4.47
29	3.46	3.86	4.12	4.13	3.55	4.26	4.49	4.72
30	3.52	4.07	4.36	4.45	3.75	4.52	5.02	4.91
31	3.58	4.25	4.53	4.70	3.96	4.79	5.63	4.89
32	3.45	4.42	4.62	4.86	4.15	5.10	6.30	4.94
33	3.18	4.59	4.62	4.92	4.30	5.45	6.95	4.97
34	2.99	4.73	4.56	5.00	4.45	5.68	7.40	4.96
35	3.05	4.71	4.46	5.13	4.67	5.71	7.45	5.04
36	2.71	4.28	4.33	5.28	5.01	5.63	7.31	5.18
37	2.70	3.58	4.14	5.33	5.58	5.59	7.15	5.25
38	3.32	3.08	3.92	5.18	6.15	5.56	6.93	5.23
39	5.11	2.77	3.80	4.88	5.92	5.52	6.55	5.00
40	5.28	2.69	3.78	4.48	5.20	5.45	5.99	4.63

TABLE V. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
5	248.3	256.4	265.4	270.6	273.4	273.5	273.9	274.1
6	241.8	249.8	259.0	264.6	267.5	267.6	267.7	267.5
7	235.2	242.3	251.7	257.6	260.9	261.2	261.2	261.3
8	229.7	236.0	244.6	250.6	254.2	254.6	254.5	255.0
9	224.8	229.8	237.9	243.7	247.2	247.9	247.4	248.4
10	222.0	224.6	231.2	236.7	240.1	241.0	240.3	241.6
11	221.5	221.2	225.0	229.8	233.1	233.6	232.9	234.4
12	221.2	219.0	219.8	222.9	225.3	225.8	225.3	226.8
13	221.1	218.1	216.4	217.1	218.0	218.1	217.9	219.4
14	220.9	217.3	213.2	212.0	211.1	210.6	210.7	212.3
15	220.5	216.6	211.2	207.7	205.2	204.3	204.7	206.2
16	220.1	216.0	209.1	203.6	199.6	198.5	199.2	200.8
17	219.8	215.9	208.4	201.2	196.0	194.9	195.7	196.7
18	219.6	216.1	208.9	202.2	197.2	196.5	197.0	197.1
19	219.5	216.4	209.8	203.5	198.8	198.6	199.1	198.1
20	219.3	216.7	211.4	206.2	202.5	202.4	203.0	202.9
21	219.4	217.1	213.0	208.9	206.1	206.2	206.8	207.3
22	219.5	217.8	214.7	211.6	209.5	209.6	210.3	210.2
23	219.7	218.4	216.5	214.3	212.8	213.1	213.8	213.2
24	220.0	219.1	218.2	217.0	216.1	216.6	217.3	216.1
25	220.7	220.2	219.8	219.2	218.7	219.1	219.8	218.8
26	221.4	221.2	221.5	221.4	221.2	221.7	222.4	221.4
27	222.2	222.3	223.1	223.6	223.8	224.3	225.0	224.1
28	222.9	223.3	224.7	225.8	226.4	226.9	227.5	226.7
29	223.6	224.4	226.4	227.9	229.0	229.4	230.1	229.4
30	224.3	225.4	228.0	230.1	231.6	232.0	232.6	232.1

TABLE V. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
31	225.1	226.5	229.6	232.3	234.1	234.6	235.2	234.7
32	226.3	227.8	231.0	234.1	236.1	236.6	237.1	236.7
33	227.5	229.1	232.2	235.5	237.7	238.3	238.6	238.2
34	228.8	230.4	233.5	237.0	239.3	240.0	240.2	239.8
35	230.0	231.7	234.7	238.4	241.0	241.7	241.8	241.4
36	231.6	233.2	236.0	239.8	242.6	243.4	243.3	242.9
37	233.5	235.3	238.1	242.0	244.7	245.6	245.5	245.1
38	235.4	237.3	240.4	244.5	247.3	248.3	248.1	247.6
39	237.4	239.4	242.6	247.0	249.8	250.9	250.7	250.2
40	239.3	241.4	244.9	249.4	252.4	253.6	253.3	252.8
41	241.2	243.5	247.2	251.9	254.9	256.2	255.9	255.3
42	243.1	245.5	249.5	254.4	257.5	258.8	258.5	257.9
43	245.0	247.4	251.5	256.9	260.1	261.5	261.1	260.5
44	246.8	249.1	253.1	258.3	261.6	263.0	262.6	262.0
45	248.7	250.9	254.6	259.6	262.7	264.1	263.7	263.1
46	250.5	252.6	256.2	260.9	263.8	265.1	264.7	264.1
47	252.3	254.3	257.7	262.2	264.9	266.1	265.7	265.2
48	252.9	255.4	259.2	263.5	266.0	267.1	266.8	266.3
49	253.4	255.7	259.3	263.8	266.6	267.7	267.3	266.9
50	254.0	256.0	259.3	263.5	266.2	267.2	266.8	266.5
51	254.5	256.3	259.4	263.3	265.7	266.7	266.3	266.0
52	255.0	256.6	259.4	263.0	265.3	266.1	265.8	265.6
53	255.5	257.0	259.5	262.7	264.9	265.6	265.4	265.2
54	256.0	257.3	259.5	262.4	264.5	265.1	264.9	264.8
55	256.6	257.6	259.6	262.2	264.0	264.6	264.4	264.3

TABLE V. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -							
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.
1000.0	-.00	.09	.14	.14	.11	.10	.11	.08
850.0	1.30	1.42	1.51	1.54	1.52	1.52	1.53	1.52
700.0	2.81	2.98	3.12	3.16	3.17	3.16	3.18	3.19
500.0	5.32	5.56	5.77	5.87	5.90	5.90	5.91	5.92
400.0	6.89	7.17	7.44	7.58	7.62	7.63	7.64	7.65
300.0	8.83	9.15	9.48	9.66	9.74	9.75	9.75	9.77
250.0	10.02	10.35	10.71	10.91	11.01	11.03	11.03	11.05
200.0	11.47	11.80	12.16	12.38	12.50	12.51	12.51	12.54
150.0	13.34	13.64	13.98	14.20	14.32	14.33	14.33	14.37
100.0	15.97	16.22	16.49	16.64	16.72	16.72	16.72	16.77
70.0	18.27	18.49	18.69	18.78	18.80	18.79	18.75	18.84
50.0	20.44	20.64	20.78	20.82	20.81	20.79	20.76	20.79
30.0	23.74	23.92	24.03	24.03	23.99	23.98	23.96	23.96
10.0	30.95	31.14	31.32	31.36	31.33	31.33	31.32	31.35
5.0	35.48	35.80	36.12	36.32	36.45	36.43	36.43	36.46
2.0	41.90	42.30	42.74	43.08	43.32	43.33	43.33	43.34
1.0	47.05	47.49	47.97	48.39	48.66	48.70	48.65	48.70
.4	54.06	54.51	55.04	55.51	55.77	55.85	55.82	55.81
TROP.	10.00	11.65	13.28	14.79	16.19	16.41	16.16	16.47

TABLE VI. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR MAY 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
5	25.58	24.13	22.12	15.82	19.79	20.91
6	24.50	23.76	19.75	26.05	19.75	16.46
7	24.64	21.43	19.58	21.04	14.80	11.96
8	20.32	15.13	16.55	19.48	21.20	9.59
9	12.04	10.47	10.96	14.10	12.25	7.94
10	6.29	6.48	8.58	10.31	11.03	6.40
11	3.83	4.00	5.36	6.84	10.04	5.05
12	2.87	2.95	3.53	5.80	8.31	6.16
13	2.45	2.43	2.63	3.62	4.57	7.19
14	2.26	2.21	2.29	2.92	3.77	4.30
15	2.12	2.06	2.81	2.83	3.80	2.20
16	1.97	1.96	2.83	3.18	3.43	2.15
17	1.72	1.78	3.14	3.18	2.66	2.81
18	1.43	1.54	3.62	2.40	1.86	2.30
19	1.20	1.27	2.40	1.79	1.65	1.77
20	.99	1.04	1.89	1.45	1.54	1.71
21	.75	.77	1.10	1.26	1.24	1.52
22	.51	.55	.64	1.43	.94	1.19
23	.34	.36	.45	1.13	.74	.92
24	.22	.23	.28	.52	.54	.69
25	.16	.17	.20	.26	.38	.53
26	.11	.12	.15	.19	.27	.39
27	.08	.09	.11	.14	.19	.26
28	.06	.06	.08	.10	.14	.19
29	.04	.05	.06	.07	.10	.14
30	.03	.04	.04	.05	.08	.10
31	.03	.03	.03	.04	.06	.08
32	.02	.02	.03	.03	.05	.06
33	.02	.02	.02	.03	.04	.04
34	.01	.01	.02	.02	.03	.04
35	.01	.01	.01	.02	.04	.03
36	.01	.01	.01	.02	.02	.02
37	.01	.01	.01	.01	.02	.02
38	.01	.01	.01	.01	.02	.02
39	.01	.01	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.01
* TROP.+2	22.61	22.49	27.60	22.98	14.70	11.00

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VI. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
5	5.07	4.82	4.49	3.44	4.23	4.45
6	5.32	5.23	4.52	5.70	4.56	3.99
7	5.91	5.28	4.93	5.18	3.93	3.40
8	5.52	4.39	4.74	5.36	5.75	3.14
9	4.03	3.67	3.76	4.51	3.94	2.98
10	2.85	2.89	3.47	3.89	4.10	2.79
11	2.32	2.37	2.77	3.18	4.13	2.58
12	2.17	2.19	2.36	3.15	3.98	3.19
13	2.16	2.15	2.20	2.54	2.84	3.87
14	2.25	2.22	2.21	2.47	2.79	2.94
15	2.36	2.32	2.74	2.68	3.10	2.16
16	2.46	2.45	3.03	3.21	3.20	2.33
17	2.48	2.52	3.63	3.54	3.00	3.05
18	2.43	2.52	4.51	3.21	2.65	2.96
19	2.38	2.46	3.70	2.94	2.73	2.79
20	2.33	2.38	3.47	2.84	2.90	3.06
21	2.16	2.19	2.68	2.91	2.80	3.18
22	1.91	1.99	2.14	3.53	2.61	3.02
23	1.71	1.76	1.92	3.28	2.49	2.86
24	1.55	1.57	1.69	2.21	2.28	2.64
25	1.45	1.48	1.57	1.74	2.07	2.50
26	1.37	1.40	1.49	1.61	1.88	2.27
27	1.31	1.33	1.41	1.52	1.74	2.02
28	1.27	1.28	1.35	1.44	1.64	1.87
29	1.23	1.25	1.30	1.38	1.52	1.74
30	1.21	1.22	1.27	1.33	1.49	1.63
31	1.20	1.20	1.25	1.30	1.42	1.54
32	1.18	1.18	1.23	1.28	1.38	1.48
33	1.17	1.17	1.22	1.27	1.34	1.43
34	1.16	1.17	1.21	1.25	1.32	1.40
35	1.16	1.16	1.20	1.25	1.47	1.37
36	1.15	1.16	1.19	1.24	1.38	1.34
37	1.15	1.15	1.20	1.24	1.36	1.33
38	1.15	1.15	1.21	1.23	1.34	1.32
39	1.14	1.15	1.23	1.24	1.33	1.32
40	1.14	1.17	1.25	1.25	1.32	1.32

TABLE VI. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
10	16.65	16.66	22.68	36.49	37.10	13.02
11	14.77	14.95	17.05	20.35	25.91	12.96
12	13.19	13.25	13.64	16.36	18.72	12.92
13	11.82	11.77	11.64	12.81	13.38	13.11
14	10.74	10.63	10.37	11.74	11.73	10.87
15	9.67	9.63	12.47	11.71	10.27	8.90
16	8.45	8.59	11.97	12.16	9.36	7.91
17	7.08	7.39	10.83	11.57	8.22	7.59
18	5.74	6.10	9.71	9.71	7.32	7.43
19	4.58	4.87	7.82	7.69	6.59	7.08
20	3.60	3.82	5.95	6.17	5.78	6.50
21	2.75	2.92	4.29	5.28	4.81	5.62
22	2.00	2.13	3.01	4.67	3.86	4.53
23	1.40	1.49	2.03	3.68	3.02	3.51
24	.96	1.02	1.34	2.47	2.30	2.69
25	.67	.72	.91	1.54	1.72	2.06
26	.47	.52	.65	1.00	1.26	1.57
27	.34	.38	.48	.70	.93	1.19
28	.25	.27	.35	.52	.70	.91
29	.18	.20	.26	.39	.52	.69
30	.13	.14	.19	.28	.39	.53
31	.09	.10	.14	.20	.30	.40
32	.07	.07	.10	.14	.23	.30
33	.05	.05	.07	.10	.17	.23
34	.03	.04	.06	.08	.14	.17
35	.02	.03	.04	.06	.12	.12
36	.02	.02	.03	.04	.09	.09
37	.01	.01	.02	.03	.07	.06
38	.01	.01	.02	.02	.05	.05
39	.01	.01	.01	.02	.04	.03
40	.00	.01	.01	.01	.03	.03
* TROP.+2	96.13	95.96	104.97	91.09	54.19	42.25

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VI. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
10	2.36	2.62	3.08	3.74	3.27	2.04
11	3.20	3.34	3.23	2.84	2.92	2.44
12	4.07	4.05	3.64	3.08	2.70	2.78
13	4.53	4.50	4.10	3.45	2.86	2.97
14	4.65	4.65	4.37	3.84	3.21	3.14
15	4.55	4.59	4.46	4.13	3.41	3.45
16	4.37	4.42	4.42	4.26	3.62	3.70
17	4.14	4.19	4.24	4.18	3.74	3.84
18	3.94	3.97	4.03	4.05	3.84	3.83
19	3.78	3.78	3.84	3.95	3.87	3.82
20	3.68	3.69	3.74	3.90	3.85	3.86
21	3.66	3.69	3.74	3.90	3.84	3.83
22	3.73	3.75	3.82	3.97	3.93	3.75
23	3.82	3.81	4.00	4.06	4.05	3.73
24	3.89	3.89	4.21	4.15	4.18	3.75
25	3.96	4.00	4.19	4.27	4.30	3.84
26	4.00	4.10	4.21	4.45	4.44	4.00
27	4.01	4.15	4.25	4.73	4.60	4.23
28	3.96	4.13	4.32	4.95	4.75	4.53
29	3.81	4.02	4.29	5.18	4.82	4.77
30	3.56	3.81	4.15	5.24	4.89	4.97
31	3.27	3.54	3.94	4.87	4.99	5.11
32	2.96	3.25	3.73	4.38	5.13	5.14
33	2.68	2.98	3.55	3.98	4.75	5.01
34	2.42	2.84	3.39	3.64	4.58	4.79
35	2.16	2.77	3.19	3.37	4.36	4.55
36	1.89	2.59	2.91	3.06	4.02	4.26
37	1.64	2.63	2.54	2.76	3.95	3.64
38	1.42	3.11	2.19	2.60	4.74	3.08
39	1.22	2.57	2.09	2.65	5.41	2.77
40	1.07	1.63	2.46	2.80	6.25	2.64

TABLE VI. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
5	246.6	247.5	252.5	260.7	267.1	271.8
6	240.1	241.0	245.7	254.0	260.3	265.4
7	233.3	234.4	238.8	247.0	253.2	258.8
8	227.6	229.1	232.7	240.0	246.2	252.0
9	222.7	224.4	226.6	233.0	239.1	244.9
10	223.6	224.2	224.0	226.8	232.2	237.9
11	225.1	225.4	223.4	222.5	225.9	231.0
12	226.3	226.4	223.5	220.0	220.7	224.1
13	227.0	227.0	223.9	219.7	217.5	217.9
14	227.2	227.1	223.9	219.3	214.9	212.4
15	226.9	226.6	223.5	218.7	213.4	209.1
16	226.6	226.1	223.0	218.1	212.0	206.4
17	226.2	225.6	222.4	217.5	211.1	204.4
18	225.7	225.1	221.7	216.9	210.8	204.1
19	225.5	224.8	221.4	216.7	211.0	204.5
20	225.5	224.8	221.5	217.4	212.9	208.1
21	225.5	224.9	221.7	218.1	214.8	211.5
22	225.6	225.0	222.1	219.2	216.6	214.0
23	225.7	225.0	222.5	220.2	218.5	216.5
24	225.8	225.1	222.8	221.3	220.4	219.0
25	226.8	226.3	224.2	222.8	222.2	221.3
26	228.0	227.5	225.8	224.5	224.1	223.5
27	229.1	228.8	227.3	226.2	226.0	225.7
28	230.2	230.1	228.8	227.9	227.8	227.9
29	231.3	231.4	230.3	229.6	229.7	230.1
30	232.5	232.6	231.8	231.2	231.5	232.3

TABLE VI. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
31	233.6	233.9	233.3	232.9	233.4	234.6
32	235.6	236.1	235.7	235.2	235.4	236.5
33	238.6	239.2	238.9	238.1	237.7	238.1
34	241.6	242.3	242.0	241.0	240.0	239.8
35	244.6	245.4	245.2	243.9	242.2	241.4
36	247.6	248.5	248.3	246.8	244.5	243.0
37	250.1	251.1	251.0	249.4	246.9	245.1
38	252.4	253.4	253.4	251.9	249.3	247.5
39	254.7	255.7	255.8	254.3	251.8	250.0
40	257.0	258.1	258.2	256.7	254.2	252.5
41	259.3	260.4	260.6	259.2	256.6	255.0
42	261.5	262.7	263.0	261.6	259.1	257.4
43	263.8	265.0	265.4	264.0	261.5	259.9
44	265.2	266.5	266.9	265.6	263.1	261.6
45	266.1	267.4	267.8	266.5	264.1	262.6
46	267.1	268.2	268.6	267.3	265.1	263.7
47	268.0	269.1	269.4	268.2	266.1	264.8
48	269.0	270.0	270.2	269.0	267.1	265.9
49	269.8	270.9	271.0	269.9	267.9	266.6
50	269.2	270.3	270.4	269.3	267.4	266.2
51	268.6	269.6	269.7	268.7	266.9	265.7
52	268.1	269.0	269.1	268.1	266.4	265.3
53	267.5	268.3	268.4	267.4	265.9	264.9
54	266.9	267.7	267.8	266.8	265.4	264.4
55	266.3	267.0	267.1	266.2	264.9	264.0

TABLE VI. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -					
	75.	65.	55.	45.	35.	25.
1000.0	.14	.09	.09	.10	.12	.11
850.0	1.41	1.38	1.41	1.46	1.51	1.52
700.0	2.90	2.89	2.95	3.04	3.13	3.16
500.0	5.39	5.38	5.49	5.66	5.80	5.88
400.0	6.95	6.95	7.08	7.30	7.48	7.59
300.0	8.86	8.88	9.04	9.30	9.53	9.68
250.0	10.05	10.07	10.24	10.52	10.76	10.95
200.0	11.53	11.55	11.70	11.97	12.23	12.43
150.0	13.45	13.47	13.60	13.83	14.06	14.26
100.0	16.16	16.18	16.26	16.44	16.59	16.71
70.0	18.49	18.51	18.57	18.68	18.78	18.82
50.0	20.71	20.73	20.75	20.83	20.88	20.87
30.0	24.10	24.11	24.09	24.14	24.16	24.11
10.0	31.51	31.52	31.49	31.50	31.54	31.52
5.0	36.37	36.41	36.43	36.46	36.50	36.53
2.0	43.33	43.41	43.44	43.44	43.42	43.40
1.0	48.93	49.04	49.06	49.01	48.88	48.75
.4	56.22	56.33	56.33	56.25	56.11	55.96
TROP.	8.71	8.85	9.76	11.59	13.92	15.99

TABLE VII. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR JUNE 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
5	13.35	12.03	12.20	9.13	5.74	6.69	8.16
6	10.62	7.52	9.21	7.00	4.95	4.90	8.66
7	8.92	4.74	7.24	5.21	5.22	6.81	8.70
8	5.83	5.23	7.26	4.03	5.92	6.37	6.14
9	3.88	11.58	11.75	3.24	4.94	4.40	6.18
10	6.60	9.14	9.26	2.97	3.06	4.96	4.29
11	4.62	13.18	4.44	3.17	2.35	5.15	3.79
12	5.69	15.54	5.07	5.34	1.80	2.77	2.78
13	7.13	10.82	5.05	4.04	1.64	2.05	2.17
14	7.49	6.72	6.04	3.96	1.52	1.74	1.87
15	6.14	4.02	6.24	8.00	1.38	1.62	1.84
16	6.79	4.03	6.30	7.56	1.34	1.61	1.84
17	1.88	3.12	4.47	3.90	1.36	1.66	1.84
18	1.91	1.85	2.44	1.53	1.48	1.74	1.76
19	2.00	1.69	1.63	1.50	1.67	1.73	1.56
20	2.00	2.00	2.00	1.83	1.74	1.56	1.29
21	1.92	2.17	2.24	2.00	1.50	1.27	1.06
22	1.60	1.77	1.81	1.53	1.09	.99	.89
23	1.19	1.26	1.29	1.02	.82	.78	.73
24	.89	.98	1.04	.85	.70	.63	.58
25	.73	.84	.92	.77	.63	.50	.44
26	.51	.65	.80	.67	.50	.38	.32
27	.35	.49	.67	.51	.38	.30	.23
28	.25	.37	.53	.40	.30	.22	.17
29	.19	.29	.41	.30	.22	.16	.11
30	.13	.22	.31	.22	.16	.11	.08
31	.10	.16	.23	.16	.11	.08	.05
32	.07	.12	.17	.11	.08	.05	.04
33	.06	.09	.12	.08	.06	.04	.03
34	.04	.06	.08	.05	.04	.03	.02
35	.03	.05	.06	.04	.03	.02	.02
36	.03	.04	.04	.03	.02	.02	.01
37	.02	.03	.03	.02	.02	.01	.01
38	.02	.02	.02	.01	.01	.01	.01
39	.01	.01	.02	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.01	.01
*TROP.+2	12.74	13.82	14.67	12.45	11.60	16.04	18.09

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VII. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
5	3.21	2.98	3.01	2.50	1.93	2.06	2.29
6	2.93	2.37	2.65	2.28	1.89	1.81	2.52
7	2.80	1.93	2.47	2.05	2.05	2.36	2.74
8	2.29	2.19	2.66	1.91	2.32	2.40	2.35
9	1.97	3.94	3.99	1.81	2.23	2.09	2.55
10	2.86	3.46	3.54	1.83	1.85	2.42	2.22
11	2.46	5.21	2.39	2.01	1.74	2.62	2.24
12	3.02	6.55	2.82	2.87	1.65	2.02	2.05
13	3.86	5.28	2.98	2.64	1.68	1.88	1.97
14	4.43	4.02	3.75	2.80	1.72	1.87	1.98
15	4.16	3.05	4.23	5.20	1.76	1.95	2.13
16	5.10	3.47	4.84	5.61	1.85	2.11	2.32
17	2.31	3.16	4.15	3.69	2.02	2.33	2.54
18	2.61	2.52	2.99	2.27	2.30	2.63	2.71
19	3.00	2.70	2.62	2.50	2.74	2.89	2.77
20	3.41	3.41	3.40	3.20	3.14	3.00	2.71
21	3.75	4.12	4.21	3.86	3.18	2.91	2.65
22	3.73	4.01	4.07	3.61	2.89	2.76	2.62
23	3.41	3.54	3.59	3.07	2.69	2.64	2.56
24	3.13	3.37	3.50	3.05	2.71	2.54	2.45
25	3.05	3.37	3.62	3.20	2.79	2.44	2.28
26	2.71	3.15	3.66	3.24	2.67	2.28	2.11
27	2.37	2.91	3.62	3.02	2.50	2.20	1.94
28	2.15	2.69	3.41	2.85	2.40	2.03	1.78
29	2.00	2.54	3.22	2.61	2.21	1.85	1.63
30	1.84	2.38	2.94	2.39	2.03	1.69	1.51
31	1.72	2.18	2.69	2.16	1.85	1.56	1.41
32	1.63	2.00	2.41	1.94	1.68	1.45	1.34
33	1.56	1.84	2.15	1.77	1.55	1.37	1.28
34	1.50	1.72	1.92	1.62	1.46	1.31	1.24
35	1.45	1.64	1.74	1.50	1.39	1.27	1.22
36	1.41	1.54	1.59	1.42	1.34	1.25	1.21
37	1.38	1.45	1.49	1.36	1.31	1.25	1.21
38	1.34	1.38	1.42	1.31	1.30	1.25	1.22
39	1.33	1.34	1.38	1.27	1.29	1.26	1.24
40	1.32	1.30	1.34	1.26	1.29	1.26	1.25

TABLE VII. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
10	9.91	13.70	10.39	6.57	7.78	12.07	12.54
11	11.71	19.84	10.88	7.45	7.27	10.47	10.45
12	9.65	19.99	10.80	8.33	6.78	9.00	8.94
13	10.72	14.87	10.37	10.08	6.53	8.34	8.03
14	13.26	11.31	10.68	11.04	6.42	7.74	7.43
15	11.32	8.90	11.23	12.44	6.36	7.25	7.18
16	10.69	7.70	12.19	11.96	6.41	7.08	7.04
17	8.89	6.79	10.61	10.33	6.64	7.10	6.81
18	7.99	6.38	9.06	8.86	6.98	7.06	6.30
19	7.47	6.63	8.42	8.40	7.16	6.70	5.49
20	7.09	7.08	8.61	8.34	6.82	5.89	4.51
21	6.54	6.95	8.33	7.67	5.83	4.78	3.58
22	5.54	5.98	7.01	6.15	4.54	3.68	2.81
23	4.31	4.73	5.42	4.58	3.41	2.78	2.21
24	3.28	3.68	4.20	3.45	2.60	2.10	1.74
25	2.54	2.91	3.40	2.73	2.07	1.61	1.35
26	1.96	2.33	2.88	2.26	1.69	1.27	1.03
27	1.50	1.87	2.48	1.90	1.41	1.01	.77
28	1.14	1.51	2.13	1.60	1.18	.80	.56
29	.87	1.21	1.78	1.32	.96	.61	.41
30	.67	.97	1.44	1.05	.74	.46	.29
31	.52	.76	1.12	.80	.56	.34	.21
32	.39	.58	.84	.59	.41	.25	.15
33	.29	.44	.62	.43	.30	.18	.11
34	.22	.32	.45	.32	.22	.13	.08
35	.16	.24	.32	.23	.16	.09	.05
36	.11	.17	.23	.17	.11	.06	.04
37	.08	.12	.17	.12	.08	.04	.03
38	.06	.09	.12	.09	.06	.03	.02
39	.04	.06	.08	.06	.04	.02	.01
40	.03	.04	.06	.04	.03	.02	.01
*TROP.+2	46.97	50.27	60.73	53.98	47.29	63.44	64.78

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VII. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
10	2.74	2.20	1.73	2.27	2.62	2.72	3.15
11	2.74	2.20	2.44	2.73	3.06	3.13	3.17
12	6.13	3.72	2.99	3.18	3.48	3.41	3.28
13	9.02	2.91	3.21	3.47	3.89	3.77	3.43
14	2.75	2.76	3.24	3.71	4.20	4.06	3.63
15	2.52	2.50	3.24	4.02	4.47	4.25	3.78
16	2.79	2.68	3.28	4.29	4.67	4.28	3.80
17	3.20	3.06	3.46	4.43	4.74	4.24	3.76
18	3.61	3.38	3.83	4.60	4.66	4.14	3.68
19	3.91	3.53	4.28	4.84	4.45	4.01	3.57
20	3.73	3.63	4.40	4.74	4.23	3.86	3.44
21	3.62	3.56	4.22	4.35	4.06	3.71	3.28
22	3.54	3.47	3.99	4.07	3.95	3.56	3.13
23	3.47	3.47	3.88	3.94	3.81	3.40	3.02
24	3.47	3.52	3.79	3.79	3.58	3.25	2.99
25	3.54	3.52	3.66	3.56	3.40	3.20	3.02
26	3.68	3.58	3.62	3.47	3.41	3.23	3.09
27	3.93	3.74	3.73	3.62	3.61	3.36	3.17
28	4.21	3.97	3.97	3.93	3.91	3.52	3.25
29	4.47	4.16	4.26	4.31	4.19	3.72	3.35
30	4.74	4.36	4.53	4.63	4.42	3.95	3.52
31	4.96	4.57	4.73	4.90	4.62	4.21	3.73
32	5.05	4.76	4.90	5.12	4.87	4.44	3.94
33	4.99	4.88	5.07	5.38	5.19	4.65	4.08
34	4.81	4.91	5.23	5.68	5.42	4.73	4.20
35	4.57	4.86	5.42	6.03	5.43	4.61	4.32
36	4.28	4.81	5.64	6.51	5.16	4.39	4.27
37	4.00	4.74	5.88	6.75	4.73	4.17	3.94
38	3.76	4.69	6.07	6.10	4.22	3.73	3.50
39	3.58	4.75	5.98	5.35	3.70	3.24	4.48
40	3.15	4.85	5.89	4.62	3.22	3.36	9.77

TABLE VII. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
5	273.0	273.1	273.4	272.1	266.1	258.5	253.1
6	266.9	267.5	267.7	266.4	260.0	251.9	246.3
7	260.6	261.3	261.5	260.0	253.2	244.6	239.2
8	254.1	254.9	254.9	253.3	246.4	237.8	232.6
9	247.4	248.1	247.9	246.2	239.8	231.1	226.0
10	240.7	241.2	240.7	239.1	233.4	225.6	221.2
11	233.9	234.0	233.1	232.0	227.4	221.5	218.4
12	225.5	225.8	225.4	224.8	221.7	218.7	216.9
13	217.9	218.2	218.2	218.1	217.0	217.1	216.6
14	211.1	211.3	211.6	211.7	212.6	215.7	216.2
15	206.5	206.7	207.2	207.4	210.0	214.6	215.7
16	203.0	203.2	204.0	204.0	207.6	213.5	215.3
17	200.5	200.7	201.3	201.5	206.1	212.7	214.9
18	200.8	200.8	200.7	201.1	205.8	212.1	214.6
19	201.7	201.5	200.7	201.4	206.1	212.1	214.3
20	205.7	205.5	204.6	204.9	208.3	212.8	214.0
21	209.6	209.4	208.4	208.2	210.5	213.6	213.9
22	212.8	212.6	211.5	211.2	212.8	214.7	214.0
23	216.1	215.7	214.6	214.2	215.1	215.7	214.2
24	219.4	218.9	217.8	217.2	217.5	216.8	214.4
25	221.7	221.2	220.1	219.4	219.4	218.1	215.0
26	224.0	223.4	222.3	221.6	221.3	219.3	215.6
27	226.2	225.7	224.5	223.9	223.2	220.6	216.2
28	228.5	227.9	226.7	226.1	225.1	221.8	216.8
29	230.7	230.2	229.0	228.3	227.0	223.0	217.4
30	233.0	232.4	231.2	230.5	228.9	224.3	218.0

TABLE VII. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
31	235.3	234.7	233.4	232.7	230.8	225.5	218.7
32	237.0	236.4	235.2	234.5	232.4	226.9	220.0
33	238.2	237.7	236.6	236.0	233.9	228.2	221.2
34	239.5	238.9	238.1	237.5	235.4	229.6	222.4
35	240.7	240.1	239.5	239.0	236.9	230.9	223.6
36	241.9	241.4	240.9	240.5	238.3	232.7	225.8
37	243.8	243.3	243.0	242.8	240.9	235.1	228.1
38	246.4	245.8	245.6	245.4	243.5	237.5	230.4
39	248.9	248.4	248.2	248.0	246.1	239.9	232.7
40	251.4	250.9	250.7	250.6	248.7	242.3	235.1
41	253.9	253.4	253.3	253.2	251.4	244.7	237.4
42	256.5	255.9	255.9	255.8	254.0	247.1	239.5
43	259.0	258.4	258.5	258.4	256.3	248.9	241.6
44	260.6	260.0	260.0	259.8	257.7	250.6	243.6
45	261.7	261.2	261.1	261.0	259.0	252.3	245.7
46	262.9	262.4	262.3	262.2	260.4	254.0	247.7
47	264.0	263.7	263.5	263.4	261.7	255.6	249.0
48	265.2	264.9	264.7	264.6	263.1	256.4	249.9
49	265.7	265.4	265.2	265.0	263.0	256.7	250.7
50	265.4	265.1	264.9	264.6	262.8	256.9	251.6
51	265.0	264.7	264.5	264.3	262.6	257.2	252.4
52	264.6	264.4	264.2	264.0	262.4	257.5	253.2
53	264.2	264.0	263.9	263.7	262.2	257.7	254.1
54	263.8	263.7	263.5	263.3	262.0	258.0	254.9
55	263.4	263.3	263.2	263.0	261.8	258.3	255.8

TABLE VII. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -						
	15.	5.	-5.	-15.	-25.	-35.	-45.
1000.0	.09	.10	.10	.13	.16	.15	.11
850.0	1.52	1.51	1.52	1.53	1.54	1.50	1.43
700.0	3.17	3.16	3.16	3.16	3.14	3.06	2.97
500.0	5.90	5.89	5.90	5.88	5.81	5.66	5.52
400.0	7.62	7.61	7.62	7.60	7.48	7.29	7.12
300.0	9.73	9.73	9.74	9.71	9.54	9.28	9.07
250.0	11.01	11.02	11.02	10.98	10.78	10.49	10.27
200.0	12.50	12.51	12.51	12.47	12.25	11.93	11.69
150.0	14.32	14.33	14.33	14.29	14.08	13.77	13.52
100.0	16.73	16.74	16.75	16.72	16.56	16.33	16.10
70.0	18.81	18.82	18.86	18.83	18.73	18.55	18.35
50.0	20.84	20.85	20.89	20.86	20.79	20.66	20.48
30.0	24.07	24.08	24.10	24.07	24.02	23.90	23.70
10.0	31.48	31.49	31.47	31.41	31.32	31.09	30.72
5.0	36.48	36.45	36.42	36.31	36.05	35.62	35.07
2.0	43.32	43.27	43.24	43.11	42.77	42.13	41.34
1.0	48.62	48.57	48.57	48.45	48.11	47.35	46.40
.4	55.84	55.81	55.77	55.66	55.34	54.48	53.39
TROP.	16.25	16.27	16.46	16.32	15.52	12.24	10.94

TABLE VIII. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR JULY 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
5	11.29	6.88	5.98	13.75	14.85
6	7.61	6.07	4.20	14.59	15.92
7	8.28	6.45	3.50	18.75	13.86
8	4.12	5.57	2.63	22.87	13.15
9	4.39	3.74	5.31	25.51	17.56
10	4.67	3.93	9.61	19.82	16.17
11	2.94	3.06	6.71	14.70	14.06
12	3.15	2.70	3.89	12.49	11.96
13	3.34	2.90	13.09	10.55	10.39
14	2.16	3.13	8.24	8.27	9.16
15	1.70	1.87	2.90	7.13	8.12
16	1.68	1.37	1.89	6.36	7.10
17	1.72	1.38	1.47	5.41	6.22
18	1.77	1.46	1.46	5.03	5.01
19	1.75	1.63	1.52	4.88	4.40
20	1.61	1.78	1.75	3.37	3.51
21	1.29	1.63	1.80	1.37	1.88
22	.98	1.21	1.50	.49	.85
23	.80	.91	1.06	.27	.45
24	.65	.72	.85	.19	.28
25	.52	.60	.74	.14	.19
26	.38	.44	.61	.10	.14
27	.26	.30	.44	.07	.10
28	.18	.20	.29	.05	.07
29	.13	.14	.21	.04	.05
30	.09	.10	.15	.03	.04
31	.06	.07	.11	.02	.03
32	.04	.05	.08	.02	.03
33	.03	.04	.06	.01	.02
34	.02	.03	.04	.01	.02
35	.02	.02	.03	.01	.02
36	.01	.01	.02	.01	.01
37	.01	.01	.02	.01	.01
38	.01	.01	.01	.01	.01
39	.00	.01	.01	.01	.01
40	.00	.01	.01	.01	.01
*TROP.+2	15.00	11.11	11.93	58.29	50.69

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VIII. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
5	2.80	2.11	1.98	3.18	3.41
6	2.36	2.10	1.76	3.58	3.89
7	2.65	2.30	1.72	4.75	3.74
8	1.85	2.24	1.59	6.16	3.93
9	2.09	1.93	2.37	7.50	5.47
10	2.29	2.10	3.71	6.70	5.58
11	1.94	1.96	3.06	5.88	5.54
12	2.15	1.96	2.37	5.84	5.46
13	2.41	2.18	6.39	5.75	5.52
14	2.05	2.50	4.62	5.33	5.63
15	1.99	1.99	2.48	5.36	5.77
16	2.13	1.86	2.14	5.49	5.85
17	2.36	2.01	2.04	5.45	5.95
18	2.64	2.27	2.23	5.81	5.63
19	2.90	2.68	2.53	6.37	5.73
20	3.04	3.18	3.11	5.25	5.37
21	2.93	3.35	3.59	2.99	3.66
22	2.74	3.07	3.54	1.84	2.43
23	2.67	2.85	3.12	1.54	1.88
24	2.59	2.73	3.02	1.44	1.64
25	2.50	2.69	3.09	1.37	1.51
26	2.27	2.46	3.01	1.31	1.43
27	2.01	2.15	2.70	1.26	1.36
28	1.84	1.93	2.33	1.22	1.30
29	1.69	1.77	2.13	1.19	1.26
30	1.56	1.63	1.94	1.17	1.23
31	1.45	1.51	1.79	1.16	1.21
32	1.36	1.42	1.67	1.15	1.20
33	1.30	1.35	1.56	1.13	1.20
34	1.25	1.30	1.47	1.13	1.20
35	1.21	1.26	1.39	1.12	1.20
36	1.18	1.23	1.33	1.12	1.20
37	1.15	1.20	1.28	1.12	1.21
38	1.13	1.19	1.24	1.12	1.23
39	1.12	1.18	1.22	1.13	1.23
40	1.12	1.18	1.20	1.15	1.24

TABLE VIII. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
10	10.11	9.21	20.74	51.92	56.07
11	10.76	8.79	14.68	42.62	39.34
12	11.31	8.36	8.62	37.06	35.47
13	10.52	8.49	8.88	32.70	32.65
14	9.33	8.84	8.38	28.50	30.34
15	8.41	7.20	7.63	24.78	27.92
16	7.93	6.19	7.01	21.17	24.86
17	7.70	5.88	6.54	17.71	20.99
18	7.51	6.04	6.51	14.90	16.91
19	7.07	6.39	6.76	12.24	13.26
20	6.21	6.41	6.96	9.17	9.79
21	5.03	5.73	6.63	6.12	6.70
22	3.88	4.61	5.63	3.76	4.37
23	2.96	3.53	4.49	2.23	2.75
24	2.29	2.73	3.57	1.34	1.71
25	1.79	2.18	2.90	.83	1.08
26	1.39	1.72	2.40	.55	.71
27	1.04	1.31	1.94	.38	.49
28	.77	.97	1.49	.27	.35
29	.56	.72	1.09	.19	.26
30	.41	.53	.79	.14	.19
31	.29	.39	.58	.10	.14
32	.21	.29	.44	.07	.11
33	.15	.21	.33	.05	.08
34	.11	.15	.25	.04	.06
35	.08	.11	.19	.03	.05
36	.05	.07	.13	.02	.04
37	.04	.05	.09	.02	.03
38	.02	.03	.06	.01	.02
39	.02	.02	.04	.01	.02
40	.01	.02	.03	.01	.02
*TROP.+2	62.39	43.09	49.54	190.38	172.40

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE VIII. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
10	3.33	2.62	1.88	2.67	3.31
11	3.56	2.93	1.97	2.67	2.69
12	3.76	3.24	2.06	2.85	2.83
13	4.11	3.50	2.26	3.08	3.03
14	4.34	3.55	2.53	3.28	3.24
15	4.48	3.72	3.05	3.42	3.42
16	4.53	3.92	3.46	3.42	3.50
17	4.45	4.04	4.06	3.29	3.46
18	4.30	4.03	4.36	3.16	3.33
19	4.15	3.96	4.29	3.14	3.23
20	3.99	3.87	4.13	3.40	3.29
21	3.84	3.76	3.96	4.18	3.67
22	3.71	3.68	3.86	5.38	4.43
23	3.58	3.65	3.91	6.18	5.10
24	3.48	3.65	3.98	6.24	5.35
25	3.48	3.71	3.95	5.74	5.20
26	3.60	3.87	4.00	5.31	4.94
27	3.81	4.12	4.24	5.08	4.77
28	4.03	4.40	4.51	4.92	4.73
29	4.22	4.69	4.70	4.74	4.75
30	4.39	4.97	4.83	4.49	4.69
31	4.59	5.26	4.99	4.20	4.48
32	4.82	5.49	5.17	3.92	4.15
33	4.96	5.60	5.37	3.60	3.77
34	4.95	5.54	5.53	3.25	3.45
35	4.88	5.32	5.59	2.96	3.26
36	4.76	4.93	5.51	2.88	3.07
37	4.56	4.42	5.31	3.19	2.71
38	4.37	3.85	4.96	2.81	2.32
39	4.79	3.30	4.44	2.11	1.99
40	9.27	2.80	3.83	1.87	1.93

TABLE VIII. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
5	260.3	268.9	272.3	257.1	262.7
6	253.8	263.0	266.8	250.7	256.6
7	246.5	256.1	260.7	243.7	249.5
8	239.3	249.1	254.3	236.8	242.3
9	232.2	242.2	247.3	230.0	235.1
10	226.1	235.2	240.1	226.1	228.9
11	221.4	228.4	232.4	225.0	224.9
12	217.9	222.2	225.1	225.5	223.2
13	216.0	217.1	218.4	226.6	223.4
14	214.2	212.5	212.1	227.4	223.7
15	213.0	209.4	207.6	227.6	223.5
16	211.9	206.7	204.5	227.7	223.4
17	211.3	204.9	202.2	227.7	223.1
18	211.0	204.9	202.6	227.5	222.7
19	211.1	205.3	203.4	227.3	222.4
20	211.7	207.8	206.8	227.5	222.9
21	212.5	210.3	210.0	227.7	223.3
22	213.8	212.8	212.6	228.2	224.1
23	215.1	215.3	215.2	228.6	224.9
24	216.4	217.8	217.7	229.1	225.6
25	218.0	219.8	219.9	230.1	226.9
26	219.5	221.8	221.9	231.8	228.5
27	221.1	223.8	224.0	233.4	230.2
28	222.7	225.8	226.0	235.0	231.8
29	224.2	227.8	228.1	236.7	233.4
30	225.8	229.8	230.1	238.3	235.1

TABLE VIII. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
31	227.3	231.8	232.2	239.9	236.7
32	228.8	233.5	233.9	241.6	238.4
33	230.3	234.9	235.4	244.1	240.9
34	231.8	236.4	236.9	246.7	243.4
35	233.3	237.9	238.4	249.3	245.9
36	235.0	239.4	239.9	252.0	248.3
37	237.4	241.5	242.0	254.6	250.8
38	239.9	244.0	244.5	257.0	253.1
39	242.3	246.5	247.0	259.3	255.4
40	244.7	249.0	249.5	261.6	257.7
41	247.2	251.5	252.0	263.9	259.9
42	249.6	254.0	254.5	266.3	262.2
43	251.5	256.5	257.0	268.6	264.5
44	253.1	257.8	258.5	270.9	266.8
45	254.7	259.1	259.7	272.2	267.8
46	256.3	260.4	261.0	273.0	268.7
47	257.9	261.7	262.3	273.7	269.6
48	258.9	263.0	263.6	274.5	270.5
49	259.0	263.4	264.1	275.3	271.3
50	259.1	263.1	263.8	276.0	271.7
51	259.1	262.9	263.6	275.2	271.0
52	259.2	262.6	263.4	274.3	270.3
53	259.3	262.4	263.1	273.4	269.6
54	259.3	262.1	262.9	272.5	268.9
55	259.4	261.9	262.6	271.6	268.2

TABLE VIII. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -				
	-35.	-25.	-15.	65.	55.
1000.0	.18	.17	.12	.10	.10
850.0	1.53	1.56	1.52	1.43	1.46
700.0	3.10	3.17	3.16	2.99	3.05
500.0	5.71	5.86	5.88	5.57	5.68
400.0	7.35	7.56	7.60	7.19	7.34
300.0	9.35	9.63	9.72	9.17	9.36
250.0	10.56	10.88	11.00	10.38	10.58
200.0	12.00	12.35	12.49	11.85	12.04
150.0	13.83	14.18	14.31	13.76	13.93
100.0	16.37	16.65	16.74	16.47	16.59
70.0	18.58	18.80	18.87	18.82	18.89
50.0	20.68	20.86	20.92	21.07	21.10
30.0	23.91	24.09	24.15	24.51	24.48
10.0	31.12	31.42	31.50	32.12	31.99
5.0	35.79	36.31	36.40	37.23	37.03
2.0	42.37	43.06	43.18	44.38	44.07
1.0	47.64	48.38	48.50	50.05	49.65
.4	54.76	55.54	55.69	57.43	56.93
TROP.	12.93	15.70	16.09	10.15	11.22

TABLE IX. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR AUGUST 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
5	36.23	13.82	7.45	8.45	2.54	4.70	6.60	4.54	5.45	9.32
6	18.02	9.83	7.66	12.26	2.37	3.82	5.48	3.31	2.90	7.21
7	13.05	7.16	6.13	4.68	1.50	3.31	5.91	4.27	4.66	5.12
8	12.27	5.23	3.71	2.90	1.39	2.74	8.55	3.86	6.16	4.39
9	11.43	4.41	3.72	11.52	1.30	2.76	6.35	2.91	9.56	3.80
10	9.70	5.78	3.58	22.69	18.54	3.50	6.09	7.47	6.60	3.66
11	8.84	4.28	3.12	16.96	4.41	2.42	3.63	4.61	3.85	3.44
12	7.28	4.66	4.30	17.89	3.36	2.93	1.67	2.31	2.65	3.13
13	5.96	4.62	6.01	14.31	5.38	3.11	1.38	1.80	2.27	2.84
14	5.93	4.46	8.43	5.97	8.42	2.91	1.34	1.68	2.08	2.64
15	6.58	5.06	6.82	4.01	9.80	3.23	1.43	1.68	1.97	2.47
16	6.77	6.10	5.99	5.18	6.52	2.08	1.50	1.73	1.95	2.24
17	6.33	6.22	5.82	6.72	2.57	1.76	1.61	1.76	1.91	1.97
18	5.32	5.65	5.50	6.57	2.15	1.88	1.67	1.80	1.79	1.67
19	3.99	4.52	4.32	5.05	2.10	1.79	1.65	1.75	1.57	1.37
20	3.03	3.17	2.86	2.90	2.09	1.69	1.54	1.47	1.28	1.08
21	2.50	2.86	2.06	2.07	1.89	1.51	1.30	1.13	1.02	.83
22	1.70	3.31	1.73	1.80	1.52	1.15	.99	.86	.79	.60
23	.99	1.55	1.65	1.61	1.17	.93	.77	.67	.61	.42
24	.50	.68	1.09	1.05	.93	.78	.57	.49	.45	.29
25	.29	.43	.64	.75	.80	.62	.42	.34	.31	.20
26	.20	.30	.44	.56	.63	.48	.30	.23	.21	.14
27	.15	.23	.30	.41	.51	.36	.21	.17	.15	.10
28	.11	.17	.22	.32	.37	.26	.15	.12	.11	.07
29	.08	.12	.17	.24	.26	.19	.11	.09	.08	.05
30	.06	.09	.12	.18	.20	.14	.08	.07	.05	.04
31	.05	.07	.09	.13	.15	.10	.06	.05	.04	.03
32	.04	.05	.07	.09	.11	.08	.05	.04	.03	.02
33	.03	.03	.05	.07	.08	.06	.04	.03	.02	.02
34	.02	.03	.04	.05	.06	.04	.03	.03	.02	.01
35	.02	.02	.03	.04	.05	.03	.02	.02	.02	.01
36	.02	.02	.03	.03	.03	.02	.02	.02	.01	.01
37	.02	.02	.02	.02	.03	.02	.02	.02	.01	.01
38	.01	.01	.02	.02	.02	.01	.02	.01	.01	.01
39	.01	.01	.01	.02	.01	.01	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
*TROP.+2	33.59	26.59	21.56	23.14	14.89	12.45	10.90	15.49	19.57	20.17

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE IX. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
5	7.05	3.23	2.21	2.42	1.42	1.77	2.08	1.71	1.86	2.49
6	4.23	2.79	2.42	3.23	1.43	1.69	1.99	1.58	1.45	2.29
7	3.63	2.43	2.23	1.93	1.30	1.67	2.18	1.85	1.94	2.03
8	3.74	2.17	1.83	1.37	1.31	1.62	2.91	1.85	2.39	2.01
9	3.86	2.10	1.92	3.95	1.32	1.70	2.56	1.72	3.41	1.98
10	3.73	2.61	1.99	7.41	6.18	1.97	2.69	3.12	2.91	2.10
11	3.80	2.34	1.98	6.23	2.40	1.75	2.13	2.45	2.28	2.20
12	3.64	2.65	2.51	7.38	2.17	2.04	1.59	1.85	2.04	2.27
13	3.49	2.87	3.42	6.54	3.17	2.24	1.57	1.79	2.05	2.35
14	3.88	3.06	4.83	3.70	4.86	2.32	1.64	1.85	2.12	2.47
15	4.70	3.73	4.56	3.05	6.16	2.71	1.79	1.99	2.24	2.61
16	5.41	4.82	4.67	4.18	4.84	2.29	1.96	2.19	2.43	2.70
17	5.77	5.54	5.15	5.84	2.81	2.29	2.21	2.42	2.63	2.75
18	5.69	5.82	5.65	6.60	2.82	2.62	2.48	2.70	2.77	2.74
19	5.10	5.52	5.28	6.03	3.11	2.82	2.72	2.93	2.82	2.67
20	4.68	4.77	4.38	4.45	3.51	3.05	2.91	2.90	2.74	2.54
21	4.56	5.07	3.91	3.96	3.70	3.17	2.90	2.71	2.62	2.39
22	3.83	6.52	3.92	4.05	3.56	2.96	2.72	2.53	2.48	2.18
23	2.93	4.00	4.29	4.20	3.35	2.89	2.57	2.40	2.32	1.96
24	2.13	2.55	3.51	3.48	3.21	2.87	2.38	2.20	2.15	1.79
25	1.78	2.17	2.75	3.08	3.23	2.74	2.19	1.99	1.92	1.65
26	1.64	1.96	2.41	2.82	3.07	2.59	2.01	1.79	1.75	1.55
27	1.54	1.87	2.14	2.58	2.94	2.40	1.83	1.66	1.62	1.45
28	1.46	1.76	2.00	2.42	2.65	2.17	1.70	1.55	1.51	1.36
29	1.40	1.63	1.88	2.26	2.35	2.03	1.58	1.47	1.43	1.30
30	1.36	1.53	1.75	2.09	2.25	1.89	1.50	1.42	1.36	1.25
31	1.33	1.45	1.64	1.91	2.05	1.76	1.44	1.37	1.31	1.22
32	1.30	1.38	1.55	1.76	1.91	1.65	1.39	1.34	1.28	1.21
33	1.28	1.32	1.50	1.65	1.82	1.55	1.36	1.31	1.25	1.20
34	1.26	1.29	1.45	1.57	1.70	1.47	1.33	1.29	1.23	1.20
35	1.26	1.28	1.42	1.51	1.59	1.39	1.32	1.28	1.22	1.20
36	1.26	1.28	1.38	1.46	1.51	1.34	1.32	1.28	1.22	1.22
37	1.27	1.28	1.36	1.43	1.45	1.31	1.33	1.27	1.22	1.24
38	1.26	1.29	1.34	1.40	1.39	1.29	1.33	1.25	1.22	1.27
39	1.26	1.31	1.33	1.38	1.35	1.28	1.34	1.24	1.22	1.29
40	1.26	1.34	1.34	1.38	1.33	1.28	1.34	1.24	1.23	1.32

TABLE IX. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
10	27.65	9.32	3.25	49.92	7.58	4.29	9.54	14.46	15.66	12.20
11	20.61	9.74	6.85	34.50	8.03	5.29	7.29	10.53	11.27	11.27
12	17.57	10.70	8.68	19.09	8.47	5.77	5.05	6.85	9.10	11.06
13	16.67	11.97	10.86	14.96	8.23	5.87	4.32	6.07	8.14	10.48
14	17.81	13.45	11.35	11.45	9.82	6.08	4.21	5.73	7.51	9.83
15	19.67	15.90	14.51	10.37	10.27	6.39	4.51	5.85	7.20	9.06
16	20.75	18.42	17.17	14.55	9.54	6.68	5.02	6.18	7.01	8.07
17	20.03	19.35	17.66	18.32	8.66	6.92	5.56	6.45	6.70	6.91
18	17.46	18.34	17.17	18.97	8.28	7.10	5.91	6.48	6.11	5.69
19	13.92	15.43	14.60	16.66	7.96	6.95	5.90	6.02	5.26	4.53
20	10.54	12.09	11.19	12.84	7.58	6.43	5.43	5.09	4.28	3.53
21	8.02	9.46	8.33	9.66	6.72	5.54	4.60	4.01	3.35	2.70
22	5.99	7.28	6.29	7.38	5.47	4.46	3.67	3.08	2.58	1.99
23	4.18	5.20	4.83	5.58	4.25	3.51	2.87	2.35	1.98	1.43
24	2.72	3.51	3.66	4.07	3.34	2.78	2.21	1.76	1.51	1.01
25	1.75	2.35	2.71	2.99	2.71	2.22	1.71	1.30	1.11	.71
26	1.14	1.62	1.99	2.24	2.23	1.79	1.31	.96	.80	.49
27	.79	1.16	1.48	1.73	1.84	1.44	.98	.70	.59	.34
28	.57	.84	1.12	1.35	1.48	1.14	.73	.52	.43	.24
29	.42	.62	.85	1.04	1.18	.90	.55	.39	.32	.17
30	.32	.47	.64	.79	.94	.69	.41	.30	.23	.12
31	.25	.36	.48	.59	.73	.52	.31	.23	.17	.09
32	.19	.27	.36	.44	.55	.39	.23	.17	.13	.06
33	.14	.20	.28	.33	.43	.29	.17	.13	.09	.04
34	.10	.14	.21	.25	.33	.22	.12	.09	.06	.03
35	.08	.10	.15	.18	.25	.16	.09	.07	.05	.02
36	.06	.07	.11	.13	.18	.11	.07	.05	.03	.01
37	.04	.05	.08	.10	.13	.08	.05	.04	.02	.01
38	.03	.04	.06	.07	.09	.06	.04	.03	.02	.01
39	.03	.03	.04	.05	.07	.04	.03	.02	.01	.01
40	.02	.02	.03	.04	.05	.03	.02	.02	.01	.01
*TROP.+2	113.35	89.59	76.70	84.77	55.46	47.75	40.21	55.27	68.25	71.01

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE IX. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
10	2.42	2.11	1.48	1.98	1.51	1.73	2.03	2.25	3.45	3.34
11	2.16	2.22	2.09	1.95	1.84	2.20	2.14	2.39	3.10	3.33
12	2.24	2.45	2.31	1.92	2.18	2.45	2.24	2.52	3.18	3.50
13	2.50	2.61	2.40	1.98	2.41	2.69	2.57	2.80	3.31	3.61
14	2.81	2.85	2.57	2.07	2.63	3.00	2.95	3.17	3.45	3.68
15	3.05	3.07	2.71	1.70	2.72	3.32	3.14	3.40	3.55	3.68
16	3.20	3.19	2.82	2.80	2.75	3.54	3.33	3.56	3.60	3.62
17	3.30	3.30	4.48	3.09	3.01	3.66	3.50	3.66	3.58	3.52
18	3.37	3.41	3.25	3.24	3.48	3.82	3.62	3.69	3.50	3.40
19	3.41	3.48	3.36	3.46	3.71	3.90	3.67	3.63	3.40	3.29
20	3.48	3.47	3.55	3.78	3.76	3.88	3.66	3.54	3.29	3.22
21	3.63	3.46	3.72	4.11	3.70	3.81	3.60	3.47	3.21	3.20
22	3.85	3.52	3.73	4.10	3.59	3.71	3.58	3.45	3.17	3.21
23	4.17	3.68	3.64	3.86	3.49	3.64	3.64	3.47	3.18	3.23
24	4.52	4.00	3.65	3.68	3.43	3.57	3.74	3.51	3.27	3.27
25	4.89	4.50	3.86	3.69	3.43	3.57	3.93	3.65	3.38	3.28
26	5.05	4.87	4.18	3.80	3.49	3.71	4.15	3.84	3.52	3.25
27	5.00	4.87	4.47	3.95	3.67	3.96	4.32	4.02	3.67	3.23
28	4.94	4.79	4.70	4.10	3.92	4.26	4.52	4.18	3.80	3.30
29	4.96	4.84	4.84	4.21	4.25	4.53	4.73	4.32	3.95	3.42
30	4.99	5.06	4.96	4.29	4.60	4.71	4.88	4.42	4.06	3.55
31	4.92	5.35	5.06	4.42	4.81	4.80	4.92	4.39	4.12	3.73
32	4.74	5.60	5.11	4.58	4.90	4.90	4.82	4.24	4.05	4.13
33	4.51	5.72	5.11	4.71	5.07	5.01	4.57	4.04	3.85	4.71
34	4.32	5.49	4.92	4.75	5.14	5.07	4.20	3.77	3.57	3.60
35	4.20	4.79	4.59	4.66	5.21	5.00	3.76	3.44	3.28	2.59
36	4.01	4.18	4.22	4.44	5.18	4.80	3.31	3.06	3.02	2.49
37	3.43	3.76	3.88	4.11	5.02	4.50	2.87	2.71	2.75	3.33
38	2.79	3.48	3.57	3.68	4.75	4.14	2.47	2.44	2.45	5.07
39	2.45	3.86	3.36	3.23	4.58	3.67	2.18	2.26	2.20	7.47
40	2.36	6.36	3.56	2.84	4.62	3.25	2.00	2.25	1.81	9.24

TABLE IX. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
5	268.3	272.3	273.6	273.7	273.2	271.3	266.1	256.3	249.0	243.9
6	262.2	266.2	267.5	267.8	267.5	265.6	260.1	249.8	242.1	237.0
7	255.1	259.7	261.5	261.6	261.2	259.1	253.5	242.9	234.9	230.2
8	248.0	253.0	255.1	255.2	254.6	252.3	246.7	236.4	228.9	224.4
9	240.9	245.9	248.0	248.3	247.3	244.8	239.7	230.0	223.1	219.3
10	234.2	238.8	240.7	241.2	239.8	237.2	233.0	225.0	219.7	216.2
11	228.2	231.5	233.1	233.4	232.0	229.4	226.7	221.6	218.2	214.6
12	224.2	224.9	225.6	225.4	224.6	222.7	221.3	219.2	217.5	213.9
13	221.3	219.2	218.7	218.0	217.8	216.7	216.9	217.7	217.2	213.5
14	219.0	214.2	212.4	211.1	211.8	211.5	212.8	216.4	216.8	212.9
15	217.7	211.6	208.8	207.2	208.3	208.6	210.5	215.4	216.3	212.3
16	216.6	209.9	206.6	204.8	206.0	206.6	208.5	214.3	215.9	211.7
17	215.9	208.8	205.0	203.2	204.2	205.2	207.4	213.8	215.2	211.1
18	216.2	209.6	205.5	204.3	204.4	205.3	207.5	213.4	214.5	210.7
19	216.5	210.5	206.3	205.7	204.8	205.8	208.2	213.6	214.3	210.4
20	217.9	213.0	209.7	209.1	208.2	208.8	210.4	214.6	214.3	210.2
21	219.3	215.6	213.0	212.3	211.5	211.8	212.6	215.7	214.5	210.4
22	220.6	217.6	215.2	214.8	213.9	214.2	214.9	217.2	214.8	210.5
23	221.9	219.5	217.5	217.2	216.3	216.7	217.2	218.6	215.0	210.6
24	223.3	221.4	219.8	219.6	218.6	219.1	219.4	220.1	215.5	211.5
25	224.7	223.1	221.8	221.7	220.7	221.1	221.4	221.5	216.3	212.4
26	226.3	224.8	223.7	223.7	222.6	223.1	223.3	223.0	217.0	213.3
27	227.8	226.4	225.6	225.6	224.5	225.0	225.2	224.4	217.8	214.2
28	229.4	228.0	227.5	227.6	226.5	227.0	227.2	225.8	218.5	215.1
29	230.9	229.7	229.4	229.5	228.4	228.9	229.1	227.3	219.3	216.0
30	232.4	231.3	231.3	231.5	230.4	230.8	231.0	228.7	220.0	216.9

TABLE IX. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
31	234.0	232.9	233.2	233.5	232.3	232.8	232.9	230.1	221.1	219.1
32	235.6	234.6	235.0	235.2	234.2	234.5	234.4	230.9	222.7	221.3
33	237.9	236.4	236.5	236.7	236.1	236.0	235.4	231.5	224.2	223.5
34	240.1	238.1	237.9	238.2	237.9	237.5	236.4	232.1	225.8	225.7
35	242.4	239.8	239.4	239.7	239.8	239.0	237.4	232.7	227.3	228.6
36	244.6	241.6	240.9	241.2	241.6	240.5	238.5	233.3	229.7	231.7
37	246.9	243.5	242.7	243.2	243.9	242.5	240.3	235.1	232.0	234.8
38	249.1	245.7	245.1	245.6	246.5	245.0	242.6	237.0	234.4	238.0
39	251.4	248.0	247.4	248.1	249.1	247.4	244.9	238.9	236.8	241.1
40	253.6	250.3	249.7	250.6	251.7	249.9	247.2	240.8	239.1	244.2
41	255.9	252.6	252.1	253.0	254.3	252.3	249.5	242.8	241.5	247.0
42	258.2	254.8	254.4	255.5	256.9	254.8	251.8	244.7	243.6	249.0
43	260.4	257.1	256.8	257.9	259.5	257.3	254.1	246.5	245.6	251.0
44	262.5	258.9	258.5	259.6	260.9	258.8	255.5	248.2	247.5	253.0
45	263.5	260.2	259.8	260.7	262.0	260.0	256.9	250.0	249.4	255.1
46	264.6	261.4	261.0	261.9	263.1	261.2	258.3	251.7	251.4	256.9
47	265.7	262.6	262.3	263.1	264.1	262.5	259.8	253.5	252.7	257.2
48	266.8	263.9	263.5	264.3	265.2	263.7	261.2	254.8	253.3	257.5
49	267.8	264.9	264.4	265.0	265.8	264.3	261.5	255.1	253.8	257.7
50	267.8	264.6	264.1	264.7	265.4	264.0	261.4	255.5	254.4	258.0
51	267.3	264.3	263.8	264.4	265.1	263.8	261.3	255.9	254.9	258.2
52	266.7	264.0	263.5	264.1	264.7	263.5	261.2	256.2	255.4	258.5
53	266.2	263.7	263.2	263.8	264.4	263.2	261.0	256.6	256.0	258.7
54	265.7	263.4	262.9	263.5	264.0	262.9	260.9	256.9	256.5	259.0
55	265.2	263.1	262.6	263.2	263.7	262.7	260.8	257.3	257.0	259.3

TABLE IX. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -									
	45.	35.	25.	15.	-5.	-15.	-25.	-35.	-45.	-55.
1000.0	.10	.12	.09	.09	.11	.15	.18	.17	.08	-.05
850.0	1.50	1.53	1.51	1.51	1.52	1.54	1.55	1.51	1.39	1.23
700.0	3.12	3.17	3.16	3.16	3.16	3.17	3.16	3.07	2.91	2.73
500.0	5.80	5.89	5.89	5.89	5.89	5.89	5.82	5.65	5.43	5.20
400.0	7.49	7.61	7.62	7.62	7.62	7.60	7.50	7.26	7.00	6.75
300.0	9.55	9.71	9.74	9.75	9.74	9.70	9.56	9.24	8.93	8.65
250.0	10.80	10.97	11.02	11.03	11.01	10.96	10.80	10.45	10.11	9.82
200.0	12.28	12.46	12.51	12.52	12.50	12.43	12.27	11.90	11.53	11.22
150.0	14.14	14.29	14.33	14.33	14.31	14.24	14.09	13.74	13.37	13.03
100.0	16.72	16.78	16.77	16.74	16.75	16.69	16.58	16.31	15.96	15.57
70.0	18.95	18.97	18.91	18.85	18.89	18.84	18.75	18.54	18.19	17.78
50.0	21.10	21.08	20.98	20.91	20.96	20.92	20.83	20.66	20.32	19.86
30.0	24.44	24.38	24.25	24.17	24.21	24.17	24.09	23.95	23.55	23.03
10.0	31.89	31.77	31.63	31.56	31.57	31.55	31.47	31.27	30.61	29.94
5.0	36.90	36.74	36.62	36.52	36.40	36.42	36.34	36.03	35.08	34.32
2.0	43.81	43.56	43.42	43.34	43.24	43.22	43.04	42.53	41.45	40.73
1.0	49.26	48.91	48.72	48.64	48.64	48.56	48.31	47.67	46.59	45.94
.4	56.48	56.07	55.87	55.85	55.93	55.77	55.43	54.65	53.61	53.08
TROP.	13.31	14.99	15.51	15.65	15.68	15.38	15.02	12.00	10.23	10.20

TABLE X. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR SEPTEMBER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
5	7.16	10.67	7.69	7.15	8.31	3.19	12.26	7.68	13.63	19.53	15.08	17.45	16.23
6	5.85	8.85	6.90	5.83	7.95	18.37	9.31	7.38	10.00	18.04	15.09	14.93	15.50
7	5.30	9.83	6.24	4.84	6.70	17.28	4.40	6.26	6.24	14.94	14.81	15.02	18.08
8	6.86	8.90	7.00	4.43	5.74	9.57	4.56	5.61	2.78	13.13	15.87	17.06	24.07
9	5.27	9.51	5.18	3.21	3.87	14.48	6.92	4.13	8.54	10.27	17.13	19.68	21.31
10	3.76	5.51	3.13	3.14	4.40	19.79	6.09	3.23	11.08	9.44	16.79	17.27	20.11
11	2.45	3.79	2.09	7.85	5.37	25.19	6.00	2.60	4.50	11.44	13.32	13.14	14.49
12	2.21	2.30	1.79	6.58	10.26	21.56	5.01	2.53	6.57	10.92	10.01	9.96	10.15
13	2.07	1.84	1.51	3.30	13.91	10.10	11.80	2.93	5.14	7.36	8.36	8.79	9.95
14	1.97	1.75	1.45	3.09	13.04	11.23	18.24	7.63	4.05	6.71	7.84	8.30	9.19
15	1.91	1.74	1.51	5.89	10.90	10.95	10.03	4.22	4.28	6.52	7.31	7.61	7.46
16	1.93	1.77	1.66	6.23	4.61	4.50	8.36	4.72	4.43	6.40	6.51	6.66	6.23
17	1.89	1.81	1.82	6.12	2.58	3.05	8.07	5.43	5.27	6.03	5.65	5.72	5.44
18	1.82	1.86	1.88	2.14	2.52	3.84	5.83	5.80	5.66	5.29	4.71	4.45	3.53
19	1.59	1.75	1.80	1.89	2.73	3.62	4.56	5.31	5.11	4.40	3.54	2.88	2.17
20	1.29	1.52	1.63	1.85	2.56	2.73	2.90	3.74	4.02	3.19	2.34	1.66	1.26
21	1.03	1.15	1.33	1.79	2.30	2.18	2.09	2.48	3.13	1.99	1.27	.89	.72
22	.81	.87	.97	1.31	2.03	1.79	1.72	1.92	2.62	1.06	.64	.47	.37
23	.60	.66	.74	1.06	1.58	1.40	1.34	1.75	1.94	.53	.37	.30	.40
24	.41	.44	.53	.82	1.29	1.11	.96	1.54	.76	.32	.23	.21	.33
25	.28	.30	.37	.59	1.02	.89	.71	.71	.43	.23	.17	.16	.26
26	.20	.21	.25	.42	.81	.71	.56	.49	.31	.17	.12	.11	.18
27	.14	.15	.18	.31	.65	.57	.43	.37	.23	.13	.09	.08	.13
28	.10	.11	.13	.24	.50	.49	.35	.29	.18	.09	.07	.06	.10
29	.07	.08	.10	.17	.36	.39	.28	.22	.13	.07	.05	.04	.07
30	.05	.06	.07	.14	.30	.30	.23	.16	.10	.05	.04	.03	.05
31	.04	.05	.06	.11	.23	.23	.17	.12	.07	.04	.03	.02	.04
32	.03	.04	.04	.08	.17	.16	.12	.09	.06	.03	.02	.02	.03
33	.02	.03	.03	.06	.12	.12	.09	.06	.04	.03	.02	.02	.02
34	.02	.02	.03	.05	.09	.09	.07	.05	.03	.02	.02	.01	.01
35	.02	.02	.02	.04	.06	.06	.05	.03	.03	.02	.01	.01	.01
36	.01	.02	.02	.03	.04	.04	.04	.03	.02	.01	.01	.01	.01
37	.01	.01	.01	.02	.03	.03	.03	.02	.02	.01	.01	.01	.00
38	.01	.01	.01	.02	.02	.02	.02	.01	.01	.01	.01	.01	.00
39	.01	.01	.01	.02	.02	.02	.01	.01	.01	.01	.01	.01	.00
40	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
*TROP.+2	18.37	13.31	10.70	12.72	19.34	20.12	21.28	25.76	28.82	42.74	54.99	56.29	58.92

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE X. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
5	2.14	2.71	2.25	2.19	2.45	1.36	3.07	2.25	3.23	4.13	3.42	3.77	3.56
6	2.03	2.58	2.25	2.05	2.45	4.43	2.69	2.33	2.78	4.22	3.69	3.65	3.75
7	2.04	2.88	2.25	1.98	2.36	4.47	1.88	2.25	2.24	3.98	3.96	3.98	4.65
8	2.55	2.98	2.56	2.00	2.30	3.14	2.04	2.26	-.14	3.93	4.58	4.82	6.50
9	2.34	3.36	2.28	1.80	1.96	4.72	2.74	2.02	3.20	3.52	5.40	6.03	6.54
10	2.09	2.53	1.87	1.88	2.26	6.19	2.68	1.90	4.09	3.72	5.89	6.04	7.23
11	1.82	2.21	1.65	3.46	2.68	9.01	2.89	1.81	2.37	4.77	5.46	5.44	5.98
12	1.86	1.84	1.64	3.33	4.72	8.47	2.78	1.89	3.34	5.05	4.91	4.95	5.12
13	1.94	1.78	1.61	2.31	6.59	4.94	5.81	2.18	3.07	4.21	4.83	5.10	5.71
14	2.04	1.86	1.68	2.29	6.90	6.16	9.10	4.54	2.90	4.42	5.19	5.51	6.05
15	2.18	2.00	1.82	4.13	6.63	6.68	6.19	3.24	3.34	4.87	5.54	5.81	5.78
16	2.39	2.18	2.05	4.81	3.79	3.67	6.17	3.95	3.85	5.43	5.70	5.89	5.65
17	2.59	2.41	2.35	5.24	2.85	3.19	6.70	4.95	4.96	5.84	5.74	5.88	5.68
18	2.78	2.71	2.63	2.80	3.15	4.27	5.90	5.96	5.97	5.95	5.58	5.40	4.51
19	2.81	2.88	2.85	2.89	3.74	4.62	5.51	6.32	6.25	5.80	5.00	4.29	3.51
20	2.73	2.92	2.99	3.22	4.07	4.26	4.43	5.46	5.89	5.04	4.05	3.20	2.69
21	2.62	2.71	2.92	3.54	4.28	4.10	3.98	4.53	5.50	3.93	2.92	2.38	2.12
22	2.49	2.53	2.66	3.21	4.43	4.04	3.91	4.25	5.48	2.82	2.13	1.85	1.68
23	2.30	2.35	2.50	3.12	4.16	3.80	3.67	4.48	4.81	2.08	1.76	1.64	1.85
24	2.04	2.07	2.26	2.93	4.04	3.64	3.25	4.60	2.76	1.76	1.56	1.52	1.81
25	1.83	1.85	2.02	2.64	3.84	3.49	2.98	2.97	2.18	1.63	1.48	1.45	1.75
26	1.68	1.71	1.83	2.36	3.66	3.34	2.82	2.57	1.98	1.56	1.41	1.37	1.59
27	1.57	1.59	1.68	2.20	3.50	3.22	2.63	2.42	1.87	1.49	1.35	1.31	1.51
28	1.47	1.49	1.61	2.06	3.27	3.22	2.58	2.29	1.79	1.42	1.30	1.27	1.45
29	1.40	1.41	1.51	1.88	2.91	3.07	2.47	2.12	1.69	1.37	1.27	1.23	1.39
30	1.35	1.36	1.45	1.85	2.82	2.87	2.40	1.97	1.59	1.33	1.25	1.20	1.32
31	1.31	1.33	1.41	1.81	2.65	2.62	2.20	1.83	1.52	1.30	1.23	1.18	1.29
32	1.28	1.30	1.37	1.70	2.39	2.37	2.03	1.71	1.46	1.27	1.21	1.16	1.25
33	1.25	1.29	1.34	1.63	2.18	2.15	1.88	1.60	1.41	1.25	1.19	1.15	1.18
34	1.24	1.28	1.31	1.58	2.00	1.96	1.76	1.51	1.37	1.24	1.18	1.15	1.15
35	1.24	1.27	1.29	1.52	1.83	1.80	1.65	1.44	1.34	1.23	1.18	1.14	1.13
36	1.24	1.26	1.26	1.45	1.67	1.65	1.55	1.38	1.32	1.23	1.17	1.14	1.10
37	1.24	1.25	1.24	1.41	1.54	1.54	1.48	1.33	1.30	1.23	1.17	1.14	1.08
38	1.24	1.25	1.23	1.41	1.44	1.44	1.41	1.30	1.29	1.22	1.18	1.14	1.05
39	1.25	1.26	1.22	1.38	1.37	1.37	1.35	1.27	1.28	1.22	1.18	1.14	1.03
40	1.25	1.29	1.22	1.34	1.34	1.31	1.30	1.25	1.27	1.21	1.18	1.14	1.03

TABLE X. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
10	8.52	11.13	6.77	16.07	1.45	54.86	1.31	5.84	10.53	46.13	54.90	48.21	47.97
11	7.34	9.00	6.21	14.57	11.89	40.00	4.79	6.34	11.00	31.09	45.18	43.19	44.59
12	6.64	7.22	5.94	13.07	20.62	32.98	8.44	6.84	11.40	28.46	38.44	38.75	41.21
13	6.26	6.10	5.58	11.03	23.21	24.83	13.12	8.45	11.39	26.26	33.62	35.53	38.46
14	6.13	5.69	5.53	12.33	23.16	22.35	16.34	10.65	11.98	25.23	30.86	32.78	34.44
15	6.21	5.75	5.85	13.21	18.49	17.89	17.41	12.50	14.03	24.71	28.01	29.12	28.44
16	6.35	6.05	6.38	12.35	15.37	13.61	17.50	14.72	16.07	23.99	24.24	24.41	22.41
17	6.33	6.36	6.91	11.09	13.05	13.42	19.52	17.40	18.26	22.05	19.78	19.25	17.20
18	5.97	6.45	7.11	9.81	12.30	14.03	18.30	18.99	18.88	18.47	15.28	14.29	12.56
19	5.25	6.08	6.80	8.82	12.04	13.56	15.76	17.91	17.15	14.28	11.26	10.03	8.43
20	4.35	5.27	5.98	7.90	11.32	11.73	12.35	14.33	13.85	10.42	7.91	6.73	5.30
21	3.50	4.28	4.84	6.78	10.14	9.59	9.45	10.38	10.67	7.19	5.26	4.30	3.25
22	2.79	3.35	3.72	5.36	8.53	7.55	7.21	7.56	8.04	4.69	3.32	2.63	2.07
23	2.16	2.53	2.81	4.15	6.73	5.75	5.36	5.70	5.70	2.95	2.04	1.59	1.37
24	1.60	1.85	2.10	3.18	5.21	4.35	3.91	4.26	3.67	1.84	1.25	.98	1.00
25	1.16	1.36	1.56	2.44	4.07	3.39	2.92	3.02	2.32	1.19	.80	.64	.76
26	.83	1.00	1.15	1.88	3.22	2.72	2.22	2.13	1.50	.81	.54	.43	.57
27	.60	.74	.86	1.44	2.58	2.23	1.72	1.53	1.00	.58	.39	.30	.44
28	.44	.55	.66	1.10	2.05	1.85	1.37	1.12	.70	.43	.28	.22	.35
29	.33	.42	.51	.86	1.63	1.52	1.11	.84	.50	.32	.21	.16	.27
30	.25	.31	.39	.67	1.29	1.21	.91	.63	.37	.25	.16	.12	.20
31	.18	.23	.30	.52	1.02	.94	.73	.48	.28	.19	.12	.08	.14
32	.13	.17	.23	.40	.78	.72	.58	.37	.21	.14	.09	.06	.10
33	.10	.13	.17	.30	.59	.53	.44	.29	.16	.10	.07	.04	.07
34	.07	.09	.12	.23	.43	.38	.32	.22	.12	.08	.05	.03	.05
35	.05	.07	.09	.18	.31	.27	.23	.17	.08	.06	.04	.02	.03
36	.04	.05	.06	.13	.23	.19	.17	.12	.06	.04	.03	.02	.02
37	.03	.04	.05	.10	.16	.13	.12	.09	.05	.03	.02	.01	.01
38	.02	.03	.03	.07	.11	.09	.09	.06	.03	.02	.01	.01	.01
39	.02	.02	.02	.05	.08	.06	.06	.05	.03	.02	.01	.01	.01
40	.01	.02	.02	.04	.06	.04	.04	.03	.02	.02	.01	.00	.00
*TROP.+2	61.04	48.53	41.24	53.80	84.28	80.36	81.12	92.01	98.78	157.49	206.78	213.52	220.34

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE X. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
10	2.56	2.22	2.07	2.59	2.00	.93	1.22	1.99	1.36	3.92	3.42	2.81	2.53
11	2.63	2.38	2.54	2.90	2.61	1.54	1.36	2.22	1.91	2.97	3.41	3.17	3.03
12	2.79	2.62	3.06	3.20	2.97	2.29	1.65	2.44	2.38	3.05	3.58	3.55	3.53
13	2.89	2.84	3.37	3.47	3.15	2.58	1.82	2.64	2.82	3.27	3.78	3.85	3.87
14	3.00	3.07	3.59	3.70	3.37	2.84	1.93	2.82	3.16	3.56	3.91	3.95	3.90
15	3.15	3.23	3.74	3.93	3.73	2.88	2.16	3.02	3.34	3.76	3.89	3.88	3.73
16	3.29	3.38	3.82	3.87	3.94	3.04	2.42	3.14	3.55	3.82	3.75	3.68	3.52
17	3.37	3.52	3.88	3.86	4.20	3.60	2.77	3.41	3.67	3.77	3.54	3.45	3.38
18	3.38	3.60	3.91	3.97	4.57	3.98	3.03	3.58	3.65	3.58	3.32	3.29	3.45
19	3.34	3.60	3.88	4.14	4.64	4.06	3.42	3.68	3.55	3.38	3.23	3.34	3.76
20	3.31	3.59	3.79	4.28	4.52	4.13	3.78	3.72	3.38	3.32	3.39	3.71	4.33
21	3.31	3.62	3.68	4.09	4.45	4.22	4.06	3.73	3.29	3.47	3.82	4.27	4.69
22	3.38	3.72	3.64	3.89	4.32	4.17	4.13	3.63	3.34	3.84	4.38	4.66	4.39
23	3.50	3.80	3.70	3.82	4.13	3.98	3.98	3.47	3.54	4.40	4.74	4.68	3.58
24	3.63	3.92	3.81	3.83	3.98	3.80	3.85	3.46	3.83	4.88	4.75	4.35	3.04
25	3.80	4.16	4.02	3.96	3.89	3.71	3.85	3.59	4.23	4.90	4.46	3.96	2.90
26	3.94	4.44	4.26	4.21	3.89	3.69	3.85	3.80	4.42	4.65	4.19	3.73	2.92
27	4.07	4.65	4.50	4.46	3.94	3.73	3.82	3.89	4.16	4.43	4.05	3.67	3.14
28	4.20	4.85	4.75	4.62	4.02	3.77	3.81	3.78	3.89	4.36	4.01	3.64	3.39
29	4.32	5.03	4.96	4.80	4.13	3.82	3.85	3.73	3.73	4.39	3.94	3.58	3.46
30	4.41	5.11	5.13	4.88	4.23	3.91	3.99	3.78	3.68	4.38	3.81	3.47	3.46
31	4.46	5.01	5.19	4.91	4.32	4.04	4.20	3.91	3.68	4.27	3.64	3.30	3.54
32	4.41	4.77	5.07	4.76	4.44	4.18	4.42	4.12	3.60	4.09	3.44	3.09	3.95
33	4.22	4.43	4.81	4.58	4.58	4.26	4.54	4.36	3.46	3.84	3.24	2.84	5.25
34	3.91	4.02	4.45	4.48	4.66	4.25	4.53	4.54	3.31	3.53	3.01	2.54	8.16
35	3.56	3.62	4.07	4.48	4.72	4.23	4.45	4.63	3.12	3.20	2.72	2.23	10.42
36	3.20	3.24	3.68	4.35	4.86	4.23	4.37	4.61	2.88	2.87	2.40	1.96	7.50
37	2.77	2.87	3.31	4.13	5.02	4.20	4.29	4.48	2.61	2.55	2.09	1.76	4.00
38	2.25	2.57	2.96	4.40	5.13	4.09	4.20	4.22	2.36	2.29	1.82	1.76	2.51
39	1.99	2.38	2.62	6.21	5.08	3.91	4.07	3.93	2.16	2.10	1.62	2.94	2.74
40	2.18	2.30	2.26	9.66	4.84	3.66	3.88	3.62	2.01	1.96	1.55	9.80	4.66

TABLE X. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
5	251.2	261.3	268.9	273.1	273.1	273.4	273.2	272.2	268.6	259.2	252.3	249.4	247.0
6	244.3	254.9	263.0	267.5	267.4	267.7	267.1	266.2	262.4	252.9	245.7	242.8	240.7
7	237.2	247.9	256.4	261.1	261.2	261.4	261.0	259.6	255.8	246.0	238.7	235.9	234.5
8	231.3	241.0	249.5	254.3	254.6	254.8	254.5	252.7	248.9	239.2	232.2	229.7	229.8
9	225.4	234.3	242.4	247.1	247.2	247.6	247.4	245.4	241.9	232.4	225.7	223.7	225.6
10	222.2	228.4	235.3	239.7	239.8	240.3	240.2	238.2	235.0	226.9	222.5	220.9	223.5
11	220.2	223.7	228.4	232.0	232.0	232.5	232.6	230.9	228.6	223.3	221.9	220.9	223.2
12	218.9	219.9	222.5	224.8	224.4	224.8	225.1	224.2	222.9	221.0	222.1	221.4	223.4
13	218.3	217.6	217.4	218.1	217.6	217.6	218.2	218.2	218.6	220.4	222.5	222.1	224.2
14	217.5	215.4	212.7	212.1	211.6	211.1	211.9	212.8	214.8	219.7	222.6	222.3	224.5
15	216.7	214.1	210.2	208.5	208.2	207.3	208.2	209.7	212.9	219.3	222.3	222.2	224.5
16	215.9	212.8	208.2	206.0	206.0	204.8	205.7	207.4	211.4	218.9	222.0	222.1	224.5
17	215.6	212.1	206.8	204.2	204.4	203.2	203.9	205.9	210.4	218.5	221.6	221.7	224.1
18	215.3	212.1	206.9	204.2	204.5	204.0	204.2	206.3	210.7	218.1	221.2	221.2	223.7
19	215.4	212.5	207.4	204.6	205.0	205.1	204.9	207.1	211.2	217.9	220.8	220.8	223.4
20	215.6	213.8	209.9	207.9	208.3	208.2	208.4	210.1	213.4	218.2	220.4	220.4	223.1
21	216.1	215.2	212.3	211.1	211.6	211.2	211.9	213.2	215.5	218.6	220.1	220.0	223.0
22	216.8	216.9	214.6	213.4	213.8	213.7	214.2	215.4	217.1	219.3	220.1	219.9	223.0
23	217.5	218.6	216.8	215.7	216.0	216.2	216.5	217.6	218.8	220.0	220.1	219.7	223.0
24	218.4	220.3	219.0	218.0	218.2	218.6	218.7	219.8	220.4	220.7	220.1	219.6	223.0
25	219.5	222.0	220.9	219.9	220.1	220.7	220.8	221.6	221.9	221.9	221.1	220.5	223.2
26	220.7	223.6	222.7	221.8	222.0	222.6	222.7	223.3	223.3	223.1	222.1	221.3	223.4
27	221.8	225.2	224.5	223.6	223.9	224.5	224.7	225.0	224.7	224.4	223.2	222.2	223.6
28	223.0	226.9	226.3	225.4	225.7	226.4	226.6	226.8	226.1	225.7	224.2	223.1	223.8
29	224.2	228.5	228.1	227.2	227.6	228.4	228.6	228.5	227.5	226.9	225.2	223.9	224.1
30	225.3	230.1	229.9	229.1	229.5	230.3	230.6	230.2	228.9	228.2	226.2	224.8	224.3

TABLE X. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
31	226.5	231.7	231.7	230.9	231.3	232.2	232.5	231.9	230.3	229.4	227.3	225.6	224.5
32	228.2	233.1	233.3	232.7	233.2	234.0	234.2	233.5	231.9	231.0	228.9	227.2	225.6
33	229.8	234.3	234.6	234.6	235.1	235.8	235.7	235.0	233.7	232.8	230.7	228.8	227.0
34	231.5	235.5	235.9	236.4	237.0	237.5	237.2	236.4	235.4	234.6	232.6	230.5	228.4
35	233.2	236.7	237.2	238.2	238.9	239.3	238.6	237.9	237.2	236.5	234.4	232.1	229.8
36	235.1	237.9	238.6	240.0	240.8	241.0	240.1	239.3	238.9	238.3	236.2	233.8	231.2
37	237.4	239.8	240.5	242.3	243.3	243.3	242.0	241.1	241.0	240.3	238.2	235.6	232.7
38	239.7	242.0	242.9	244.9	245.9	245.9	244.5	243.4	243.2	242.4	240.1	237.5	234.1
39	242.0	244.1	245.3	247.4	248.6	248.5	246.9	245.7	245.5	244.6	242.1	239.4	235.6
40	244.3	246.3	247.7	250.0	251.3	251.1	249.4	248.0	247.7	246.7	244.1	241.2	237.1
41	246.6	248.5	250.0	252.6	254.0	253.7	251.8	250.3	250.0	248.8	246.1	243.1	238.6
42	248.9	250.6	252.4	255.1	256.7	256.3	254.2	252.6	252.2	250.9	248.0	244.9	240.1
43	250.7	252.7	254.8	257.7	259.4	258.9	256.7	254.9	254.5	253.0	249.8	246.7	241.9
44	252.4	254.2	256.3	259.1	260.7	260.3	258.2	256.5	256.0	254.4	251.4	248.5	243.9
45	254.1	255.7	257.6	260.4	261.9	261.5	259.5	257.8	257.4	255.9	253.0	250.3	245.9
46	255.8	257.3	259.0	261.6	263.0	262.6	260.8	259.2	258.8	257.3	254.6	252.0	247.8
47	257.4	258.8	260.4	262.8	264.2	263.8	262.1	260.5	260.2	258.8	256.2	253.8	249.8
48	258.3	260.3	261.8	264.0	265.3	264.9	263.3	261.9	261.6	260.3	257.6	254.8	250.9
49	258.4	260.6	262.2	264.5	265.8	265.3	263.9	262.6	262.2	260.6	257.7	255.2	251.6
50	258.5	260.5	262.1	264.2	265.4	265.0	263.6	262.4	262.1	260.5	257.9	255.5	252.2
51	258.6	260.5	261.9	263.9	265.0	264.7	263.3	262.2	262.0	260.5	258.1	255.9	252.9
52	258.8	260.4	261.8	263.6	264.6	264.3	263.1	262.1	261.8	260.5	258.2	256.2	253.6
53	258.9	260.4	261.7	263.3	264.2	264.0	262.8	261.9	261.7	260.4	258.4	256.6	254.2
54	259.0	260.3	261.5	263.0	263.8	263.6	262.5	261.8	261.6	260.4	258.6	256.9	254.9
55	259.2	260.3	261.4	262.7	263.4	263.3	262.3	261.6	261.4	260.3	258.7	257.3	255.5

TABLE X. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -												
	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	55.
1000.0	.09	.17	.16	.12	.11	.09	.09	.12	.13	.11	.08	.09	.02
850.0	1.41	1.53	1.54	1.53	1.52	1.51	1.52	1.53	1.52	1.46	1.40	1.39	1.32
700.0	2.94	3.11	3.16	3.16	3.16	3.16	3.17	3.17	3.13	3.02	2.93	2.90	2.82
500.0	5.48	5.73	5.85	5.90	5.89	5.89	5.90	5.89	5.82	5.62	5.47	5.41	5.32
400.0	7.06	7.37	7.55	7.62	7.62	7.62	7.62	7.61	7.51	7.26	7.07	6.99	6.89
300.0	9.00	9.39	9.62	9.74	9.74	9.74	9.74	9.71	9.58	9.26	9.02	8.92	8.82
250.0	10.20	10.61	10.88	11.01	11.01	11.02	11.01	10.97	10.83	10.48	10.21	10.11	10.02
200.0	11.64	12.06	12.35	12.49	12.49	12.50	12.50	12.45	12.31	11.93	11.66	11.55	11.48
150.0	13.49	13.90	14.18	14.31	14.31	14.32	14.32	14.28	14.14	13.79	13.54	13.43	13.37
100.0	16.08	16.45	16.65	16.75	16.75	16.74	16.76	16.74	16.66	16.41	16.19	16.08	16.04
70.0	18.33	18.67	18.83	18.89	18.88	18.84	18.86	18.88	18.84	18.67	18.50	18.39	18.35
50.0	20.47	20.79	20.91	20.96	20.95	20.90	20.92	20.96	20.95	20.82	20.67	20.56	20.55
30.0	23.74	24.07	24.17	24.20	24.20	24.14	24.16	24.22	24.24	24.13	23.98	23.87	23.92
10.0	30.95	31.43	31.52	31.52	31.52	31.47	31.50	31.59	31.57	31.44	31.22	31.07	31.17
5.0	35.65	36.27	36.37	36.37	36.32	36.38	36.49	36.54	36.47	36.26	35.99	35.78	35.89
2.0	42.21	42.94	43.09	43.16	43.15	43.20	43.26	43.27	43.20	42.93	42.57	42.26	42.27
1.0	47.46	48.22	48.38	48.51	48.54	48.54	48.53	48.53	48.48	48.24	47.84	47.47	47.35
.4	54.51	55.31	55.54	55.74	55.84	55.79	55.67	55.66	55.60	55.31	54.81	54.39	54.19
TROP.	10.54	13.32	15.27	15.79	15.57	15.68	15.74	15.40	14.77	11.61	9.95	9.74	9.48

TABLE XI. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR OCTOBER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
5	13.26	14.62	9.40	22.54	13.22	8.85	6.39	0.00
6	12.69	10.92	7.93	14.80	12.82	6.21	5.01	12.13
7	14.61	12.10	7.30	9.70	9.09	5.24	3.46	10.25
8	14.89	12.15	6.26	7.29	8.16	4.59	3.21	8.35
9	14.20	11.09	11.64	5.39	1.48	11.10	2.84	7.62
10	12.90	8.80	11.16	3.56	14.72	7.69	3.28	7.53
11	9.97	7.15	4.15	3.53	49.73	8.66	3.08	7.70
12	8.45	6.13	3.32	5.12	26.23	8.54	3.81	8.27
13	7.67	5.77	3.60	6.60	12.71	13.48	5.57	7.63
14	7.47	5.79	4.12	5.69	7.59	11.56	4.74	5.92
15	7.26	6.08	4.42	5.32	5.13	14.86	6.25	2.91
16	6.75	6.44	4.94	5.00	9.56	18.09	5.24	2.47
17	5.84	6.21	5.53	6.31	8.05	14.00	6.17	2.06
18	4.52	5.24	5.78	6.21	6.48	9.82	6.01	1.91
19	3.14	3.97	5.13	5.83	5.25	5.30	5.07	2.00
20	1.87	2.76	3.77	4.67	3.79	3.70	4.14	2.22
21	1.08	1.67	2.58	3.43	2.63	2.70	3.13	2.37
22	.58	.95	1.69	2.66	2.15	2.12	2.17	2.14
23	.36	.59	.94	2.02	1.72	1.68	1.73	1.76
24	.25	.34	.58	1.16	1.13	1.27	1.33	1.40
25	.18	.24	.40	.71	.83	1.01	1.07	1.08
26	.14	.18	.30	.52	.62	.81	.85	.80
27	.10	.13	.23	.41	.51	.67	.70	.61
28	.07	.10	.18	.30	.39	.54	.56	.43
29	.06	.07	.13	.23	.32	.46	.48	.37
30	.04	.05	.10	.17	.25	.35	.39	.28
31	.03	.04	.07	.12	.19	.28	.28	.20
32	.03	.03	.05	.09	.14	.23	.28	.16
33	.02	.03	.04	.06	.10	.17	.20	.12
34	.02	.02	.03	.05	.07	.12	.15	.09
35	.02	.02	.02	.03	.05	.09	.11	.07
36	.01	.02	.02	.02	.04	.06	.08	.05
37	.01	.01	.02	.02	.03	.05	.05	.04
38	.01	.01	.01	.02	.02	.03	.03	.03
39	.01	.01	.01	.01	.02	.02	.02	.02
40	.01	.01	.01	.01	.01	.02	.02	.02
*TROP.+2	46.87	35.04	26.56	27.90	23.68	26.93	25.76	17.45

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XI. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
5	3.11	3.36	2.48	4.80	3.18	2.49	2.05	0.00
6	3.20	2.93	2.42	3.67	3.32	2.13	1.91	3.21
7	3.93	3.42	2.46	2.95	2.84	2.06	1.70	3.05
8	4.34	3.73	2.41	2.63	2.84	2.04	1.73	2.86
9	4.64	3.80	3.92	2.34	.26	3.80	1.71	2.91
10	4.77	3.50	4.09	1.99	5.26	3.18	1.92	3.11
11	4.35	3.32	2.30	2.01	17.39	3.72	1.96	3.43
12	4.30	3.30	2.16	2.83	10.16	4.04	2.36	3.96
13	4.50	3.52	2.49	3.66	6.05	6.38	3.26	4.08
14	4.97	3.94	2.96	3.58	4.40	6.21	3.15	3.73
15	5.48	4.59	3.45	3.80	3.66	9.14	4.31	2.54
16	5.83	5.41	4.21	4.08	6.91	12.03	4.16	2.51
17	5.85	5.94	5.20	5.58	6.67	10.78	5.42	2.48
18	5.35	5.85	6.13	6.31	6.40	9.09	6.09	2.64
19	4.52	5.30	6.35	6.91	6.24	6.29	6.11	3.05
20	3.43	4.50	5.63	6.64	5.52	5.41	5.99	3.74
21	2.64	3.48	4.76	5.94	4.76	4.86	5.44	4.47
22	2.04	2.66	3.89	5.56	4.66	4.61	4.69	4.69
23	1.75	2.20	2.91	5.09	4.48	4.41	4.51	4.60
24	1.61	1.81	2.38	3.75	3.71	4.04	4.20	4.36
25	1.53	1.69	2.14	2.99	3.34	3.87	4.03	4.06
26	1.46	1.62	1.98	2.72	3.07	3.70	3.82	3.66
27	1.40	1.52	1.90	2.58	2.99	3.63	3.73	3.38
28	1.34	1.44	1.80	2.37	2.77	3.47	3.59	2.99
29	1.30	1.39	1.70	2.21	2.72	3.48	3.57	2.98
30	1.26	1.34	1.59	2.05	2.55	3.20	3.46	2.73
31	1.25	1.30	1.52	1.88	2.37	3.03	3.04	2.45
32	1.23	1.27	1.45	1.74	2.22	2.92	3.36	2.33
33	1.22	1.26	1.40	1.61	2.00	2.66	3.03	2.16
34	1.22	1.26	1.36	1.50	1.84	2.41	2.74	2.03
35	1.22	1.26	1.33	1.42	1.70	2.19	2.44	1.90
36	1.22	1.27	1.30	1.37	1.59	1.99	2.17	1.77
37	1.23	1.27	1.29	1.34	1.49	1.82	1.92	1.65
38	1.25	1.28	1.28	1.32	1.41	1.66	1.72	1.54
39	1.27	1.29	1.29	1.30	1.36	1.54	1.57	1.48
40	1.29	1.32	1.30	1.28	1.32	1.45	1.46	1.45

TABLE XI. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
10	32.51	23.84	9.92	9.81	124.42	16.27	4.83	27.16
11	30.62	21.62	10.57	10.39	70.87	15.74	5.56	34.70
12	29.28	20.46	10.80	10.85	40.47	15.21	6.28	42.24
13	28.39	20.56	12.21	13.22	19.87	17.55	8.74	34.81
14	27.75	21.41	14.26	15.45	14.16	15.40	9.23	26.45
15	26.19	22.41	16.61	16.19	11.62	19.97	13.59	12.88
16	23.25	22.46	18.66	18.26	17.95	21.41	14.36	11.21
17	19.28	20.66	20.32	20.82	18.41	21.89	18.82	10.57
18	14.92	17.20	20.21	22.44	19.62	21.33	21.67	10.47
19	10.80	13.18	17.68	21.47	18.18	19.49	21.85	10.68
20	7.38	9.53	13.82	18.00	15.23	16.43	19.07	10.83
21	4.78	6.57	10.03	13.80	11.84	13.02	15.21	10.47
22	2.97	4.34	6.92	10.21	8.97	10.05	11.69	9.33
23	1.82	2.78	4.57	7.31	6.66	7.66	8.90	7.71
24	1.15	1.74	2.98	5.02	4.83	5.80	6.72	6.12
25	.75	1.13	2.01	3.48	3.55	4.48	5.16	4.76
26	.53	.77	1.41	2.51	2.71	3.54	4.04	3.60
27	.38	.55	1.04	1.88	2.13	2.86	3.26	2.71
28	.28	.41	.79	1.44	1.72	2.35	2.68	2.07
29	.21	.31	.61	1.10	1.39	1.95	2.21	1.58
30	.16	.23	.47	.83	1.12	1.60	1.82	1.19
31	.12	.17	.36	.63	.88	1.28	1.50	.94
32	.09	.13	.27	.47	.68	1.03	1.23	.75
33	.07	.09	.20	.35	.52	.81	1.00	.57
34	.05	.07	.15	.26	.38	.63	.79	.42
35	.04	.05	.11	.19	.27	.48	.60	.30
36	.03	.04	.08	.13	.19	.35	.45	.21
37	.02	.03	.05	.09	.14	.26	.33	.15
38	.02	.02	.04	.06	.10	.18	.24	.10
39	.01	.02	.03	.05	.07	.13	.16	.07
40	.01	.01	.02	.03	.05	.09	.11	.05
* TROP.+2	168.49	123.87	100.03	108.47	91.88	105.95	119.47	80.94

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XI. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
10	2.46	2.49	2.00	1.91	2.90	1.58	1.60	3.47
11	2.84	2.70	2.53	2.48	2.32	1.77	1.66	4.45
12	3.19	3.00	2.91	2.93	2.14	1.95	1.73	5.43
13	3.50	3.31	3.48	3.20	2.23	1.89	1.84	4.86
14	3.66	3.54	3.71	3.39	2.53	1.55	2.04	4.47
15	3.65	3.64	3.82	3.66	2.76	1.76	2.37	4.09
16	3.53	3.61	3.81	3.83	2.74	2.14	2.77	4.49
17	3.39	3.51	3.82	3.95	2.98	2.64	3.35	4.92
18	3.32	3.38	3.76	3.96	3.37	3.09	3.91	5.19
19	3.39	3.32	3.67	3.95	3.59	3.61	4.51	5.18
20	3.65	3.41	3.63	3.90	3.85	4.05	4.92	4.98
21	4.03	3.66	3.72	3.85	4.04	4.43	5.08	4.74
22	4.34	4.02	3.95	3.83	4.05	4.55	5.06	4.53
23	4.41	4.31	4.21	3.89	3.95	4.47	4.97	4.34
24	4.20	4.37	4.45	4.04	3.91	4.34	4.81	4.24
25	3.90	4.30	4.55	4.31	4.02	4.27	4.65	4.21
26	3.68	4.10	4.48	4.47	4.14	4.20	4.52	4.18
27	3.58	3.97	4.40	4.52	4.20	4.17	4.49	4.19
28	3.55	3.97	4.39	4.58	4.24	4.20	4.50	4.22
29	3.54	4.05	4.49	4.69	4.34	4.28	4.54	4.21
30	3.52	4.15	4.65	4.79	4.46	4.34	4.66	4.19
31	3.44	4.12	4.77	4.94	4.60	4.41	4.77	4.45
32	3.35	3.96	4.79	5.14	4.76	4.51	4.80	4.77
33	3.17	3.68	4.71	5.32	4.90	4.65	4.90	4.80
34	2.93	3.31	4.52	5.41	4.97	4.85	5.08	4.59
35	2.73	2.90	4.20	5.35	4.97	5.05	5.28	4.34
36	2.46	2.51	3.80	5.09	4.90	5.19	5.50	4.13
37	2.17	2.21	3.38	4.71	4.75	5.24	5.74	3.95
38	2.09	2.11	3.01	4.28	4.52	5.28	5.97	3.73
39	2.12	2.23	2.64	3.83	4.22	5.22	6.08	3.38
40	1.81	2.78	2.26	3.43	3.85	5.12	5.85	2.93

TABLE XI. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
5	252.6	259.1	266.9	*****	273.3	273.4	273.3	271.0
6	246.5	252.9	260.7	*****	267.5	267.8	267.7	264.7
7	239.8	246.1	253.8	*****	261.3	261.5	261.2	258.3
8	233.7	239.4	246.7	*****	254.7	254.8	254.3	251.5
9	227.6	232.7	239.4	*****	247.3	247.6	246.9	244.0
10	223.9	227.2	232.4	*****	239.8	240.3	239.4	236.7
11	222.2	223.1	226.1	*****	232.1	232.5	231.6	229.6
12	221.3	219.9	220.7	*****	224.3	224.7	224.4	223.2
13	220.9	218.1	216.5	*****	217.2	217.4	217.6	217.1
14	220.6	216.5	212.6	*****	210.7	210.7	211.2	211.4
15	220.2	215.7	210.7	*****	206.6	206.5	206.8	207.3
16	219.9	214.9	208.9	*****	203.6	203.5	203.3	203.8
17	219.5	214.6	208.1	*****	201.6	201.4	201.0	202.0
18	219.2	214.6	208.5	*****	202.0	202.0	202.2	203.7
19	218.9	214.8	209.3	*****	203.0	203.2	203.7	205.7
20	218.6	215.2	211.3	*****	206.6	206.9	207.1	208.8
21	218.6	215.8	213.2	*****	210.0	210.4	210.5	211.8
22	218.8	216.6	215.0	*****	212.9	213.1	213.2	214.2
23	219.0	217.5	216.7	*****	215.8	215.9	216.0	216.5
24	219.3	218.4	218.4	*****	218.7	218.7	218.7	218.8
25	220.2	219.7	220.0	*****	220.8	220.9	221.0	221.0
26	221.1	221.0	221.5	*****	222.9	223.1	223.3	223.3
27	222.0	222.3	223.1	*****	225.1	225.3	225.5	225.5
28	223.0	223.6	224.7	*****	227.2	227.4	227.8	227.8
29	223.9	225.0	226.2	*****	229.3	229.6	230.0	230.0
30	224.8	226.3	227.8	*****	231.4	231.8	232.3	232.3

TABLE XI. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
31	225.7	227.6	229.3	*****	233.5	234.0	234.5	234.5
32	227.2	229.2	230.9	*****	236.0	236.5	237.0	236.8
33	228.8	230.9	232.5	*****	238.7	239.2	239.6	239.1
34	230.3	232.5	234.0	*****	241.4	241.9	242.2	241.5
35	231.9	234.2	235.6	*****	244.1	244.6	244.8	243.8
36	233.5	235.9	237.2	*****	246.9	247.3	247.4	246.2
37	235.4	238.1	239.4	*****	249.0	249.5	249.5	248.2
38	237.3	240.3	241.8	*****	250.7	251.3	251.3	250.0
39	239.2	242.5	244.2	*****	252.5	253.1	253.1	251.8
40	241.1	244.7	246.5	*****	254.3	254.9	254.9	253.6
41	243.0	246.9	248.9	*****	256.1	256.7	256.8	255.4
42	244.9	249.2	251.3	*****	257.9	258.5	258.6	257.2
43	246.7	251.1	253.5	*****	259.7	260.3	260.4	259.0
44	248.5	252.7	254.9	*****	260.3	261.1	261.1	259.6
45	250.2	254.2	256.4	*****	260.5	261.2	261.3	259.8
46	252.0	255.8	257.8	*****	260.6	261.4	261.4	260.0
47	253.8	257.3	259.3	*****	260.7	261.6	261.6	260.2
48	254.9	258.7	260.7	*****	260.9	261.8	261.8	260.4
49	255.2	258.8	260.8	*****	261.0	262.0	261.9	260.5
50	255.6	258.9	260.7	*****	261.2	262.1	261.8	260.5
51	255.9	259.0	260.7	*****	261.4	262.2	261.7	260.5
52	256.3	259.0	260.6	*****	261.6	262.4	261.7	260.5
53	256.6	259.1	260.6	*****	261.7	262.5	261.6	260.5
54	257.0	259.2	260.5	*****	261.9	262.6	261.5	260.5
55	257.4	259.3	260.5	*****	262.1	262.7	261.4	260.5

TABLE XI. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -							
	55.	45.	35.	25.	15.	5.	-5.	-15.
1000.0	.10	.14	.15	.13	.09	.09	.10	.14
850.0	1.41	1.48	1.53	1.54	1.51	1.50	1.50	1.53
700.0	2.94	3.05	3.14	3.17	3.16	3.15	3.15	3.17
500.0	5.48	5.65	5.81	5.89	5.89	5.88	5.88	5.88
400.0	7.08	7.29	7.49	7.60	7.62	7.61	7.61	7.59
300.0	9.04	9.29	9.55	9.69	9.74	9.73	9.72	9.68
250.0	10.24	10.51	10.78	10.95	11.01	11.00	10.99	10.94
200.0	11.70	11.96	12.25	12.43	12.49	12.49	12.48	12.42
150.0	13.56	13.80	14.07	14.24	14.31	14.31	14.30	14.24
100.0	16.19	16.37	16.56	16.66	16.72	16.72	16.72	16.67
70.0	18.47	18.60	18.72	18.76	18.78	18.80	18.81	18.78
50.0	20.63	20.72	20.81	20.81	20.82	20.84	20.87	20.85
30.0	23.92	24.00	24.06	24.05	24.05	24.07	24.10	24.09
10.0	31.14	31.23	31.36	31.39	31.40	31.43	31.45	31.44
5.0	35.86	35.98	36.13	0.00	36.35	36.37	36.37	36.35
2.0	42.34	42.58	42.79	0.00	43.30	43.35	43.34	43.28
1.0	47.53	47.84	48.06	0.00	48.72	48.78	48.78	48.69
.4	54.47	54.90	55.19	0.00	55.83	55.91	55.91	55.79
TROP.	10.61	12.55	14.71	15.65	15.98	15.97	16.03	15.91

TABLE XII. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR NOVEMBER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
5	7.59	5.86	4.41	6.64	6.59	10.07	12.86	9.04	13.91	6.74	6.25
6	8.82	10.07	3.52	10.70	5.99	7.50	18.73	7.05	15.49	6.68	4.46
7	8.27	8.86	3.37	13.05	7.50	5.56	10.76	5.34	13.54	8.10	13.20
8	5.24	5.42	4.09	14.04	5.86	6.81	6.50	4.42	8.50	16.43	7.20
9	5.27	4.99	3.78	9.49	5.23	6.20	4.22	3.72	6.96	7.54	5.23
10	4.27	4.06	3.14	10.31	7.56	9.07	8.45	3.22	9.62	6.83	6.57
11	3.57	3.91	2.88	2.92	5.86	5.31	6.45	2.55	10.29	2.61	3.84
12	3.33	3.40	2.55	2.44	5.15	4.26	4.96	2.54	11.85	2.22	3.19
13	3.27	2.79	2.31	2.19	2.97	2.83	3.16	3.89	13.36	2.52	2.35
14	2.67	2.43	2.17	2.09	1.99	1.99	3.09	3.56	11.42	2.81	2.18
15	1.93	1.93	1.96	2.14	1.99	1.97	5.34	3.12	10.83	2.70	2.15
16	1.18	1.44	1.73	2.13	2.29	2.13	7.49	4.20	9.90	4.02	2.61
17	.67	1.01	1.54	2.06	2.53	2.53	7.49	7.05	6.83	4.57	3.50
18	.38	.71	1.36	1.83	2.26	3.03	6.79	7.70	5.78	4.83	4.88
19	.24	.54	1.10	1.60	2.01	2.92	7.15	7.80	6.88	5.22	5.03
20	.17	.39	.86	1.30	1.67	2.54	5.94	8.01	6.29	3.93	3.64
21	.12	.30	.63	.96	1.27	1.64	3.73	7.43	4.14	2.66	2.36
22	.09	.24	.47	.67	.91	1.14	1.82	4.22	2.52	1.95	1.44
23	.07	.18	.33	.46	.62	.82	1.09	1.71	1.69	1.36	.98
24	.05	.14	.24	.33	.41	.55	.74	1.18	1.23	.94	.71
25	.04	.11	.18	.24	.30	.41	.57	.92	.96	.72	.55
26	.03	.08	.13	.18	.23	.29	.43	.73	.73	.55	.41
27	.03	.06	.10	.13	.17	.22	.32	.58	.57	.45	.33
28	.02	.05	.07	.10	.13	.16	.26	.45	.46	.37	.24
29	.02	.04	.06	.07	.09	.12	.24	.37	.38	.30	.19
30	.02	.03	.04	.05	.07	.09	.21	.29	.29	.23	.14
31	.01	.03	.04	.04	.05	.06	.16	.23	.21	.16	.10
32	.01	.02	.03	.03	.04	.05	.12	.17	.15	.11	.07
33	.01	.02	.02	.02	.03	.04	.09	.12	.11	.08	.05
34	.01	.02	.02	.02	.02	.03	.06	.09	.08	.06	.04
35	.01	.01	.02	.01	.02	.02	.05	.06	.05	.04	.03
36	.01	.01	.01	.01	.02	.02	.03	.04	.04	.03	.02
37	.01	.01	.01	.01	.01	.01	.02	.03	.03	.02	.02
38	.00	.01	.01	.01	.01	.01	.02	.02	.03	.02	.02
39	.00	.01	.01	.01	.01	.01	.02	.02	.02	.01	.01
40	.00	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
*TROP.+2	10.84	13.52	17.16	16.92	14.85	14.44	27.55	39.53	29.66	20.98	18.58

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XII. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
5	2.21	1.95	1.71	2.08	2.07	2.66	3.16	2.50	3.32	2.12	2.02
6	2.59	2.83	1.64	2.97	2.09	2.36	4.41	2.30	3.87	2.23	1.81
7	2.66	2.81	1.68	3.55	2.51	2.12	3.17	2.09	3.75	2.66	3.66
8	2.19	2.25	1.96	4.20	2.28	2.54	2.47	2.00	2.94	4.71	2.61
9	2.40	2.32	1.99	3.39	2.31	2.54	2.05	1.94	2.74	2.87	2.30
10	2.29	2.22	1.95	3.89	3.16	3.54	3.46	1.90	3.75	2.90	2.83
11	2.27	2.37	2.01	1.98	2.90	2.66	3.00	1.80	4.27	1.81	2.20
12	2.39	2.39	2.04	1.95	2.83	2.51	2.75	1.90	5.14	1.78	2.13
13	2.60	2.36	2.11	1.98	2.23	2.14	2.24	2.58	6.31	2.01	1.95
14	2.53	2.39	2.21	2.10	1.97	1.93	2.40	2.59	6.15	2.26	2.01
15	2.31	2.29	2.27	2.30	2.14	2.07	3.82	2.62	6.58	2.41	2.16
16	1.94	2.13	2.31	2.51	2.53	2.35	5.56	3.53	6.92	3.45	2.65
17	1.63	1.93	2.36	2.70	2.97	2.89	6.25	6.06	5.78	4.27	3.60
18	1.43	1.76	2.40	2.77	3.06	3.65	6.65	7.48	5.85	5.11	5.24
19	1.33	1.68	2.33	2.81	3.15	4.01	8.25	8.87	7.97	6.24	6.15
20	1.27	1.59	2.20	2.72	3.10	4.10	8.17	10.72	8.55	5.71	5.43
21	1.23	1.53	2.04	2.48	2.88	3.38	6.28	11.57	6.89	4.83	4.43
22	1.20	1.49	1.89	2.21	2.58	2.95	4.08	8.08	5.28	4.35	3.50
23	1.18	1.43	1.74	1.98	2.28	2.67	3.20	4.44	4.41	3.78	3.01
24	1.17	1.40	1.62	1.81	1.99	2.33	2.77	3.83	3.95	3.27	2.72
25	1.16	1.36	1.53	1.69	1.86	2.14	2.61	3.61	3.71	3.04	2.58
26	1.15	1.32	1.46	1.60	1.77	1.98	2.42	3.44	3.43	2.84	2.38
27	1.14	1.29	1.40	1.51	1.66	1.84	2.24	3.28	3.24	2.75	2.30
28	1.14	1.27	1.35	1.44	1.57	1.72	2.20	3.06	3.10	2.71	2.11
29	1.13	1.25	1.31	1.39	1.49	1.61	2.27	2.99	3.04	2.62	2.05
30	1.13	1.24	1.29	1.34	1.44	1.53	2.29	2.83	2.80	2.42	1.89
31	1.13	1.22	1.27	1.30	1.39	1.47	2.17	2.68	2.55	2.19	1.73
32	1.13	1.21	1.26	1.26	1.35	1.43	2.00	2.41	2.31	1.97	1.61
33	1.13	1.20	1.25	1.24	1.32	1.39	1.86	2.18	2.09	1.78	1.51
34	1.13	1.20	1.24	1.22	1.28	1.35	1.74	1.99	1.91	1.63	1.42
35	1.13	1.19	1.23	1.20	1.26	1.31	1.62	1.82	1.73	1.51	1.34
36	1.12	1.19	1.23	1.19	1.24	1.28	1.51	1.65	1.59	1.42	1.30
37	1.12	1.18	1.23	1.19	1.23	1.25	1.40	1.51	1.47	1.34	1.27
38	1.11	1.17	1.22	1.19	1.23	1.23	1.33	1.41	1.37	1.28	1.25
39	1.11	1.17	1.20	1.21	1.22	1.22	1.27	1.33	1.30	1.23	1.22
40	1.11	1.18	1.19	1.22	1.21	1.21	1.23	1.28	1.26	1.19	1.19

TABLE XII. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
10	33.74	43.08	21.95	25.24	38.57	67.00	22.67	10.64	10.84	12.99	12.83
11	11.46	12.23	8.95	8.14	12.35	12.77	10.44	8.14	12.26	7.19	9.09
12	11.44	11.63	8.66	7.75	10.23	10.52	8.92	8.28	15.77	6.73	7.78
13	11.13	10.47	8.24	7.67	9.98	8.63	8.36	9.79	17.32	6.83	7.59
14	9.30	9.05	7.78	7.94	9.05	7.41	8.87	8.93	14.54	6.92	7.79
15	7.07	7.43	7.20	8.25	9.14	7.75	11.54	9.15	13.39	7.77	8.68
16	4.92	5.78	6.53	8.29	9.72	8.80	14.11	12.53	15.94	11.17	10.66
17	3.18	4.31	5.81	7.95	9.91	10.22	17.71	18.96	18.33	14.32	13.51
18	1.95	3.12	5.02	7.23	9.27	11.18	21.20	24.81	22.48	16.91	15.72
19	1.17	2.27	4.18	6.29	8.16	10.88	22.28	28.71	24.41	17.17	15.42
20	.70	1.66	3.37	5.22	6.83	9.47	20.00	28.97	22.33	14.58	12.61
21	.43	1.24	2.64	4.14	5.43	7.45	15.25	25.03	17.25	11.19	9.31
22	.29	.93	2.00	3.15	4.13	5.50	10.37	17.66	12.16	8.33	6.52
23	.20	.71	1.46	2.31	3.04	3.94	6.64	10.94	8.39	6.02	4.49
24	.14	.55	1.06	1.67	2.19	2.80	4.33	6.89	5.80	4.30	3.15
25	.10	.44	.79	1.21	1.61	2.05	2.98	4.66	4.13	3.18	2.28
26	.07	.34	.60	.91	1.21	1.54	2.17	3.42	3.08	2.43	1.71
27	.05	.27	.47	.69	.91	1.16	1.66	2.66	2.40	1.92	1.33
28	.04	.21	.36	.52	.69	.87	1.32	2.13	1.93	1.55	1.05
29	.03	.16	.27	.39	.52	.66	1.10	1.73	1.56	1.24	.84
30	.02	.12	.21	.29	.39	.50	.92	1.40	1.25	.98	.66
31	.02	.09	.15	.22	.30	.37	.76	1.12	.98	.76	.52
32	.01	.07	.11	.16	.22	.28	.60	.87	.75	.57	.40
33	.01	.05	.08	.11	.16	.21	.45	.66	.55	.41	.30
34	.01	.04	.06	.08	.12	.15	.33	.48	.39	.30	.22
35	.01	.03	.04	.06	.08	.11	.24	.35	.28	.21	.15
36	.01	.02	.03	.04	.06	.08	.17	.25	.20	.15	.11
37	.01	.01	.02	.03	.04	.06	.12	.17	.14	.10	.07
38	.00	.01	.02	.02	.03	.04	.08	.12	.10	.07	.05
39	.00	.01	.01	.01	.02	.03	.06	.08	.07	.05	.03
40	.00	.01	.01	.01	.02	.02	.04	.05	.05	.03	.02
*TROP.+2	40.08	52.49	64.30	68.62	63.67	60.47	105.82	154.54	119.05	81.76	68.39

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XII. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
10	8.64	10.50	6.80	9.68	9.44	12.04	4.20	4.01	2.17	3.70	3.25
11	3.24	3.27	3.07	3.26	3.53	3.03	2.53	3.09	2.03	2.58	2.93
12	3.53	3.40	3.28	3.21	3.30	3.30	2.76	3.16	2.41	2.99	3.16
13	3.53	3.61	3.46	3.38	3.38	3.63	3.05	3.72	2.61	3.14	3.15
14	3.59	3.74	3.60	3.66	3.84	3.46	2.78	3.01	2.74	2.83	3.51
15	3.68	3.82	3.68	3.85	4.25	3.74	3.16	2.95	2.21	3.21	3.76
16	3.87	3.93	3.76	3.93	4.27	3.93	3.48	3.33	2.63	3.29	3.86
17	4.16	4.09	3.81	3.97	4.18	4.01	4.00	3.52	3.33	3.57	3.78
18	4.34	4.23	3.81	3.97	4.12	4.01	3.82	3.70	3.51	3.69	3.63
19	4.21	4.24	3.81	4.00	4.12	3.98	3.83	3.82	3.81	3.73	3.51
20	3.79	4.07	3.87	4.07	4.16	4.03	3.93	3.84	3.89	3.74	3.48
21	3.33	3.88	3.99	4.23	4.23	4.19	4.18	3.95	4.00	3.85	3.67
22	3.01	3.71	4.07	4.45	4.37	4.39	4.57	4.10	4.20	4.06	3.97
23	2.78	3.59	4.10	4.65	4.59	4.57	5.00	4.36	4.37	4.19	4.16
24	2.55	3.55	4.12	4.76	4.80	4.65	5.18	4.74	4.34	4.24	4.16
25	2.31	3.53	4.20	4.82	4.99	4.79	5.09	4.83	4.15	4.28	4.08
26	2.09	3.52	4.32	4.93	5.08	4.98	5.00	4.57	4.03	4.24	4.00
27	1.91	3.49	4.46	5.04	5.15	5.15	4.93	4.50	4.01	4.18	4.03
28	1.75	3.40	4.54	5.14	5.25	5.31	4.86	4.53	4.05	4.14	4.13
29	1.58	3.26	4.48	5.19	5.35	5.45	4.77	4.60	4.12	4.16	4.35
30	1.41	3.11	4.29	5.18	5.37	5.52	4.75	4.70	4.23	4.30	4.68
31	1.27	3.02	4.00	5.12	5.31	5.48	4.82	4.88	4.41	4.56	5.13
32	1.17	2.96	3.64	5.03	5.16	5.36	4.97	5.07	4.61	4.84	5.59
33	1.10	2.80	3.31	4.92	4.92	5.17	5.02	5.24	4.73	5.07	5.94
34	1.05	3.06	3.06	4.75	4.61	4.90	4.97	5.33	4.75	5.24	6.10
35	1.01	4.43	2.83	4.46	4.23	4.63	4.97	5.41	4.85	5.32	6.00
36	.98	6.30	2.60	4.22	3.82	4.45	5.13	5.62	5.08	5.32	5.56
37	.97	6.65	2.46	4.97	3.46	4.31	5.43	6.00	5.40	5.23	4.91
38	1.01	4.31	2.46	8.46	3.20	4.18	5.54	6.42	5.70	5.10	4.26
39	1.37	2.90	2.76	14.58	2.95	4.07	5.33	6.22	5.87	4.98	3.71
40	1.66	3.38	5.02	14.62	2.68	4.23	4.99	5.64	6.58	4.87	3.28

TABLE XII. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
5	238.4	242.4	247.0	255.4	263.3	269.5	272.8	273.5	273.6	272.8	269.4
6	231.5	235.6	240.4	249.0	257.0	263.0	267.1	267.8	267.9	267.2	263.4
7	224.6	228.9	233.8	242.2	250.1	256.2	260.4	261.6	261.5	260.4	256.2
8	217.8	223.1	228.9	236.2	243.2	249.1	253.5	255.0	254.7	253.4	249.0
9	211.8	218.1	224.5	230.4	236.3	241.9	246.4	247.7	247.5	246.2	241.7
10	207.5	214.8	222.0	226.3	230.0	234.7	239.1	240.3	240.2	238.9	234.6
11	205.1	213.0	221.1	223.5	224.6	227.9	231.4	232.2	232.4	231.1	227.8
12	204.4	212.9	220.8	221.5	220.3	221.8	223.7	224.1	224.4	223.5	221.4
13	204.0	213.1	220.8	220.4	217.4	216.6	216.5	216.5	216.6	216.3	215.8
14	204.2	213.6	221.1	219.3	214.7	211.8	209.6	209.5	209.2	209.6	210.6
15	204.3	214.2	221.3	218.6	213.5	209.1	205.2	205.2	204.5	205.1	207.2
16	205.7	215.1	221.6	217.8	212.3	206.8	202.0	202.4	201.3	201.8	204.2
17	207.2	216.5	222.2	218.0	211.8	205.5	199.9	200.3	199.0	199.4	202.1
18	209.1	217.8	222.8	218.6	212.0	205.9	201.2	200.6	199.4	199.7	201.8
19	211.1	219.3	223.5	219.3	212.5	206.8	202.8	201.5	200.5	200.7	202.5
20	213.8	220.9	224.3	220.0	214.0	209.4	206.4	205.4	204.8	204.9	206.3
21	216.8	223.0	225.3	220.9	215.5	212.0	210.0	209.1	209.0	208.9	209.9
22	219.8	225.2	226.6	222.0	217.3	214.4	212.8	212.0	211.9	212.0	212.6
23	223.1	227.3	227.8	223.2	219.2	216.9	215.6	214.8	214.7	215.0	215.4
24	226.7	229.7	229.1	224.4	221.0	219.4	218.4	217.6	217.6	218.0	218.1
25	230.4	232.1	230.7	225.9	222.8	221.5	220.7	220.0	219.9	220.2	220.1
26	234.0	234.5	232.3	227.4	224.7	223.6	223.0	222.4	222.0	222.3	222.1
27	237.7	236.9	233.8	228.9	226.5	225.7	225.3	224.7	224.2	224.4	224.0
28	241.3	239.3	235.4	230.4	228.3	227.8	227.5	227.0	226.4	226.5	226.0
29	245.0	241.7	237.0	231.9	230.1	229.9	229.8	229.4	228.6	228.5	227.9
30	248.6	244.1	238.6	233.4	232.0	232.0	232.0	231.7	230.7	230.6	229.9

TABLE XII. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
31	252.3	246.6	240.2	234.9	233.8	234.1	234.3	234.1	232.9	232.7	231.8
32	256.0	249.8	242.5	237.0	236.1	236.5	236.7	236.5	235.3	235.0	234.0
33	259.7	253.1	245.5	240.0	239.0	239.3	239.4	239.1	238.0	237.4	236.6
34	263.4	256.3	248.6	243.0	242.0	242.0	242.1	241.8	240.7	239.9	239.1
35	267.1	259.5	251.6	246.1	244.9	244.8	244.7	244.4	243.4	242.3	241.6
36	269.4	262.7	254.6	249.1	247.9	247.6	247.4	247.0	246.1	244.8	244.1
37	270.6	264.4	257.0	251.6	250.3	249.8	249.3	248.8	247.8	246.4	245.7
38	271.8	265.7	258.6	253.3	251.8	251.0	250.1	249.3	248.4	247.3	246.8
39	272.9	267.0	260.1	255.1	253.4	252.2	250.9	249.9	249.0	248.1	247.9
40	274.1	268.4	261.7	256.9	255.0	253.4	251.7	250.4	249.6	249.0	249.0
41	275.3	269.7	263.2	258.7	256.6	254.6	252.4	251.0	250.2	249.9	250.1
42	276.5	271.0	264.8	260.5	258.2	255.8	253.2	251.5	250.8	250.7	251.2
43	277.4	272.4	266.4	262.2	259.7	256.9	254.0	252.1	251.4	251.6	252.3
44	276.0	272.3	267.2	263.3	260.7	257.7	254.4	252.3	251.7	251.9	252.7
45	274.7	271.1	266.6	263.1	260.5	257.4	254.1	252.1	251.6	251.9	252.7
46	273.4	270.0	265.9	263.0	260.4	257.2	253.9	251.8	251.4	251.8	252.7
47	272.1	268.8	265.2	262.8	260.2	256.9	253.6	251.5	251.3	251.8	252.7
48	270.7	267.7	264.6	262.7	260.0	256.7	253.3	251.2	251.1	251.7	252.7
49	270.0	266.5	263.9	262.5	259.9	256.4	253.0	251.0	251.0	251.8	252.9
50	270.4	266.5	263.8	262.6	260.0	256.8	253.9	252.3	252.4	252.8	253.7
51	270.7	266.6	264.0	262.7	260.2	257.4	254.9	253.8	253.9	253.8	254.4
52	271.1	266.6	264.2	262.9	260.5	257.9	256.0	255.4	255.4	254.8	255.1
53	271.4	266.7	264.4	263.0	260.7	258.5	257.0	256.9	256.9	255.9	255.9
54	271.8	266.8	264.6	263.2	260.9	259.1	258.1	258.5	258.4	256.9	256.6
55	272.1	266.9	264.8	263.3	261.1	259.7	259.2	260.0	259.9	257.9	257.4

TABLE XII. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -										
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.
1000.0	-.05	-.05	-.01	.07	.14	.13	.11	.09	.09	.11	.15
850.0	1.21	1.21	1.28	1.40	1.50	1.52	1.51	1.50	1.50	1.52	1.53
700.0	2.66	2.69	2.79	2.94	3.10	3.15	3.15	3.15	3.15	3.16	3.15
500.0	5.08	5.15	5.29	5.52	5.74	5.84	5.88	5.88	5.88	5.89	5.85
400.0	6.60	6.69	6.85	7.13	7.39	7.54	7.60	7.61	7.61	7.61	7.55
300.0	8.46	8.58	8.78	9.11	9.42	9.61	9.71	9.73	9.73	9.71	9.62
250.0	9.59	9.74	9.98	10.33	10.65	10.86	10.97	11.01	11.00	10.98	10.86
200.0	10.93	11.14	11.42	11.79	12.11	12.33	12.46	12.49	12.49	12.46	12.33
150.0	12.66	12.93	13.29	13.65	13.95	14.14	14.26	14.29	14.29	14.26	14.14
100.0	15.08	15.47	15.92	16.26	16.48	16.60	16.65	16.68	16.66	16.65	16.58
70.0	17.26	17.74	18.20	18.51	18.67	18.73	18.74	18.74	18.73	18.73	18.67
50.0	19.34	19.90	20.41	20.69	20.79	20.81	20.80	20.79	20.76	20.75	20.71
30.0	22.58	23.25	23.81	24.03	24.07	24.06	24.02	24.01	23.98	23.97	23.92
10.0	30.08	30.86	31.36	31.44	31.44	31.42	31.38	31.34	31.32	31.31	31.28
5.0	35.31	36.00	36.36	36.34	36.33	36.33	36.31	36.26	36.20	36.17	36.11
2.0	42.67	43.20	43.42	43.30	43.28	43.30	43.27	43.23	43.14	43.03	42.92
1.0	48.35	48.79	48.96	48.82	48.78	48.76	48.69	48.63	48.54	48.41	48.29
.4	55.70	56.10	56.25	56.11	56.03	55.93	55.80	55.70	55.61	55.49	55.39
TROP.	10.57	10.24	9.83	11.31	13.64	15.38	15.84	15.84	16.02	16.13	16.05

TABLE XIII. SUNSET ZONALLY AVERAGED EXTINCTION AND TEMPERATURE PROFILES IN 10° LATITUDE BANDS FOR DECEMBER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -			
	35.	45.	35.	25.
5	6.82	10.88	7.17	6.18
6	6.22	10.09	6.88	16.84
7	10.79	10.67	5.63	9.02
8	9.16	10.01	4.70	5.26
9	9.23	9.12	4.27	3.77
10	7.51	7.86	4.59	6.32
11	6.69	7.44	4.15	6.86
12	4.38	6.64	3.88	4.07
13	3.79	5.99	3.80	2.72
14	4.09	5.66	4.02	2.30
15	4.46	5.43	4.18	2.24
16	4.89	5.07	4.51	2.72
17	5.09	4.39	4.68	3.81
18	4.73	3.35	4.07	4.62
19	3.62	2.35	2.90	4.23
20	2.37	1.54	1.86	2.87
21	1.47	.99	1.19	1.75
22	.91	.67	.78	1.15
23	.60	.48	.61	.79
24	.44	.38	.47	.59
25	.34	.30	.37	.44
26	.27	.24	.31	.36
27	.21	.18	.25	.28
28	.16	.13	.19	.23
29	.12	.10	.14	.17
30	.08	.07	.10	.13
31	.06	.05	.07	.10
32	.04	.04	.05	.07
33	.03	.03	.04	.05
34	.02	.02	.03	.04
35	.02	.02	.02	.03
36	.01	.02	.02	.02
37	.01	.01	.01	.02
38	.01	.01	.01	.01
39	.01	.01	.01	.01
40	.01	.01	.01	.01
*TROP.+2	28.47	35.65	24.88	15.76

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XIII. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -			
	35.	45.	35.	25.
5	2.10	2.72	2.17	2.02
6	2.12	2.79	2.26	4.14
7	3.19	3.12	2.12	2.80
8	3.03	3.24	2.06	2.18
9	3.33	3.31	2.08	1.93
10	3.15	3.27	2.33	2.82
11	3.15	3.51	2.35	3.14
12	2.64	3.60	2.45	2.44
13	2.67	3.73	2.65	2.09
14	3.09	4.01	3.03	2.06
15	3.65	4.36	3.45	2.21
16	4.38	4.65	4.07	2.72
17	5.09	4.66	4.70	3.82
18	5.41	4.25	4.75	4.99
19	4.94	3.66	4.13	5.31
20	4.04	3.05	3.37	4.48
21	3.23	2.55	2.79	3.56
22	2.63	2.22	2.40	3.00
23	2.26	2.03	2.28	2.63
24	2.08	1.96	2.16	2.43
25	1.98	1.89	2.07	2.27
26	1.90	1.82	2.05	2.22
27	1.85	1.73	1.99	2.12
28	1.73	1.63	1.87	2.05
29	1.63	1.53	1.76	1.93
30	1.54	1.46	1.63	1.81
31	1.45	1.39	1.54	1.70
32	1.39	1.35	1.45	1.59
33	1.33	1.31	1.39	1.49
34	1.29	1.29	1.34	1.41
35	1.25	1.27	1.30	1.36
36	1.22	1.25	1.28	1.32
37	1.21	1.24	1.26	1.30
38	1.20	1.24	1.24	1.28
39	1.19	1.23	1.23	1.27
40	1.20	1.24	1.21	1.24

TABLE XIII. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -			
	35.	45.	35.	25.
10	14.62	20.91	8.65	19.79
11	14.34	19.34	9.96	13.93
12	13.82	18.65	10.59	8.28
13	14.32	18.10	11.31	6.37
14	15.47	17.67	12.41	5.86
15	16.93	17.03	13.58	6.83
16	18.05	15.71	14.45	9.08
17	17.93	13.53	14.28	11.67
18	16.04	10.76	12.63	13.07
19	12.82	7.98	9.97	12.37
20	9.38	5.63	7.21	10.02
21	6.44	3.85	5.00	7.34
22	4.24	2.62	3.46	5.21
23	2.77	1.81	2.48	3.70
24	1.87	1.30	1.84	2.68
25	1.32	.98	1.43	2.00
26	.98	.75	1.14	1.55
27	.76	.58	.92	1.22
28	.60	.45	.75	.97
29	.48	.35	.60	.77
30	.37	.26	.47	.61
31	.29	.20	.37	.48
32	.22	.15	.27	.37
33	.16	.11	.20	.28
34	.12	.08	.15	.20
35	.08	.06	.11	.14
36	.06	.04	.08	.10
37	.04	.03	.05	.07
38	.03	.02	.04	.05
39	.02	.02	.03	.03
40	.01	.01	.02	.02
*TROP.+2	106.31	114.44	85.05	57.05

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XIII. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -			
	35.	45.	35.	25.
10	2.34	2.62	1.77	1.46
11	2.76	2.65	2.21	1.71
12	3.11	2.76	2.48	1.82
13	3.43	2.89	2.75	2.04
14	3.71	3.03	3.00	2.44
15	3.82	3.13	3.18	2.81
16	3.80	3.16	3.26	3.07
17	3.71	3.18	3.28	3.18
18	3.61	3.20	3.30	3.18
19	3.60	3.29	3.40	3.22
20	3.73	3.42	3.58	3.37
21	3.94	3.54	3.79	3.67
22	4.10	3.58	3.91	4.01
23	4.11	3.48	3.88	4.22
24	3.96	3.31	3.77	4.30
25	3.75	3.16	3.70	4.27
26	3.59	3.10	3.69	4.19
27	3.59	3.14	3.71	4.14
28	3.70	3.25	3.88	4.18
29	3.92	3.40	4.16	4.35
30	4.19	3.53	4.46	4.59
31	4.47	3.63	4.74	4.89
32	4.82	3.71	4.93	5.16
33	5.18	3.71	5.05	5.34
34	5.24	3.64	5.03	5.35
35	4.93	3.50	4.73	5.11
36	4.65	3.42	4.21	4.67
37	5.00	3.53	3.71	4.13
38	4.74	4.01	3.35	3.64
39	5.77	4.83	3.17	3.27
40	6.31	5.73	2.99	2.99

TABLE XIII. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -			
	35.	45.	35.	25.
5	258.4	252.0	259.0	268.7
6	251.8	245.4	252.9	262.8
7	244.7	238.4	246.2	256.2
8	237.9	231.8	239.6	249.3
9	231.2	225.4	233.1	242.0
10	225.6	220.7	227.0	234.6
11	221.3	218.1	222.0	227.4
12	218.0	216.5	218.0	220.9
13	216.1	216.1	215.6	215.1
14	214.2	215.8	213.5	209.7
15	213.1	215.6	212.2	206.2
16	212.0	215.3	210.9	203.1
17	211.4	215.0	210.2	201.0
18	211.1	214.7	209.8	200.7
19	211.5	214.7	210.3	201.6
20	212.8	215.0	211.9	205.9
21	214.1	215.3	213.6	209.9
22	215.4	215.8	215.5	212.9
23	216.7	216.3	217.3	215.8
24	218.1	216.9	219.2	218.8
25	219.5	217.8	220.6	220.6
26	220.8	218.7	222.0	222.4
27	222.2	219.6	223.5	224.2
28	223.6	220.5	224.9	226.0
29	225.0	221.4	226.3	227.8
30	226.4	222.3	227.7	229.5

TABLE XIII. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -			
	35.	45.	35.	25.
31	227.8	223.2	229.2	231.3
32	230.1	226.2	231.4	233.5
33	232.6	229.2	234.0	236.0
34	235.2	232.1	236.6	238.4
35	237.8	235.1	239.3	240.9
36	240.3	237.6	241.9	243.4
37	241.7	239.2	243.4	244.9
38	243.0	240.7	244.6	245.9
39	244.4	242.3	245.9	246.9
40	245.7	243.8	247.1	247.9
41	247.0	245.4	248.4	248.9
42	248.3	246.9	249.7	249.9
43	249.4	247.5	250.8	250.9
44	249.5	247.7	250.8	251.1
45	249.6	248.0	250.8	251.0
46	249.8	248.2	250.8	250.9
47	249.9	248.4	250.9	250.8
48	250.0	249.1	250.9	250.7
49	251.0	250.4	251.5	251.0
50	252.1	251.7	252.5	251.9
51	253.2	253.0	253.5	252.7
52	254.3	254.2	254.4	253.6
53	255.4	255.5	255.4	254.5
54	256.5	256.8	256.4	255.4
55	257.6	258.1	257.3	256.2

TABLE XIII. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -			
	35.	45.	35.	25.
1000.0	.13	.14	.15	.14
850.0	1.48	1.44	1.49	1.52
700.0	3.04	2.97	3.05	3.13
500.0	5.64	5.51	5.65	5.82
400.0	7.27	7.10	7.29	7.52
300.0	9.26	9.05	9.29	9.59
250.0	10.47	10.24	10.51	10.84
200.0	11.91	11.66	11.96	12.31
150.0	13.74	13.49	13.79	14.11
100.0	16.27	16.06	16.31	16.55
70.0	18.48	18.32	18.51	18.66
50.0	20.58	20.45	20.60	20.68
30.0	23.83	23.70	23.86	23.92
10.0	31.07	30.83	31.14	31.26
5.0	35.80	35.47	35.90	36.08
2.0	42.44	42.01	42.60	42.86
1.0	47.70	47.19	47.88	48.18
.4	54.73	54.17	54.92	55.22
TROP.	12.84	10.81	12.98	15.97

TABLE XIV. SEASONALLY AVERAGED EXTINCTION AND TEMPERATURE DATA FOR SPRING 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
5	4.46	5.30	6.63	5.17	9.22	9.10	6.79	14.79	18.64	18.75	13.95	13.69	24.13	25.58
6	4.30	4.10	4.39	4.98	6.86	8.18	7.74	9.17	13.88	31.99	17.37	10.49	23.76	24.50
7	3.85	7.38	4.67	4.22	5.40	14.36	-6.58	6.88	9.94	19.37	14.75	10.01	21.43	24.64
8	4.50	4.42	4.20	3.56	4.52	13.76	9.52	5.71	7.18	16.49	13.96	9.51	15.13	20.32
9	4.18	5.31	3.54	3.61	4.27	11.87	25.01	4.39	6.33	10.06	11.64	6.30	10.47	12.04
10	3.36	8.32	2.90	2.73	12.71	26.07	31.36	13.39	6.47	9.98	7.53	5.22	6.48	6.29
11	2.58	4.92	4.50	4.06	11.87	20.61	33.29	12.73	6.14	6.79	5.56	4.18	4.00	3.83
12	2.24	3.33	4.78	12.11	7.03	15.53	36.77	10.54	5.18	5.50	4.78	3.44	2.95	2.87
13	2.03	2.87	2.59	15.47	6.03	12.77	21.50	7.54	5.14	3.51	3.39	2.85	2.43	2.45
14	1.86	2.09	2.03	6.41	5.09	19.50	13.80	5.26	3.02	2.93	2.77	2.45	2.21	2.26
15	1.77	1.79	1.39	1.83	6.57	13.16	14.57	4.41	1.84	2.92	2.59	2.32	2.06	2.12
16	1.61	1.67	1.40	1.32	7.36	13.87	9.77	3.04	1.83	2.74	2.65	2.14	1.96	1.97
17	1.42	1.59	1.51	1.36	6.06	11.89	7.37	1.98	2.27	2.39	2.53	2.02	1.78	1.72
18	1.21	1.44	1.58	1.50	1.98	4.68	4.06	1.77	2.13	1.95	2.01	1.94	1.54	1.43
19	1.01	1.21	1.50	1.66	1.77	1.98	2.38	2.09	1.95	1.75	1.60	1.51	1.27	1.20
20	.85	1.00	1.20	1.56	2.08	2.32	2.50	2.56	1.84	1.50	1.32	1.26	1.04	.99
21	.69	.83	.97	1.26	2.03	2.54	2.70	2.28	1.48	1.21	1.15	.93	.77	.75
22	.53	.69	.79	.96	1.44	1.85	1.86	1.50	1.14	.96	1.10	.65	.55	.51
23	.39	.56	.66	.79	1.00	1.19	1.17	1.07	.91	.75	.81	.45	.36	.34
24	.29	.44	.52	.66	.81	.96	.95	.89	.71	.54	.42	.30	.23	.22
25	.22	.37	.43	.61	.74	.87	.84	.75	.54	.37	.25	.21	.17	.16
26	.16	.29	.36	.55	.67	.77	.69	.53	.36	.25	.18	.15	.12	.11
27	.12	.23	.30	.45	.58	.66	.55	.37	.24	.18	.13	.10	.09	.08
28	.09	.17	.23	.36	.49	.54	.43	.26	.17	.13	.09	.07	.06	.06
29	.06	.12	.18	.25	.40	.45	.32	.19	.12	.09	.07	.05	.05	.04
30	.04	.09	.13	.19	.30	.36	.25	.14	.09	.07	.05	.04	.04	.03
31	.03	.06	.09	.14	.22	.28	.19	.11	.07	.05	.04	.03	.03	.03
32	.03	.04	.07	.10	.16	.21	.14	.08	.05	.04	.03	.02	.02	.02
33	.02	.03	.05	.07	.11	.15	.11	.06	.04	.03	.02	.02	.02	.02
34	.02	.02	.04	.05	.08	.11	.08	.04	.03	.02	.02	.02	.01	.01
35	.02	.02	.03	.04	.05	.08	.06	.03	.02	.03	.02	.01	.01	.01
36	.01	.01	.02	.03	.04	.06	.05	.03	.02	.02	.01	.01	.01	.01
37	.01	.01	.02	.02	.02	.04	.03	.02	.02	.02	.01	.01	.01	.01
38	.01	.01	.01	.01	.02	.03	.03	.02	.01	.01	.01	.01	.01	.01
39	.01	.01	.01	.01	.01	.02	.02	.01	.01	.01	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.02	.02	.01	.01	.01	.01	.01	.01	.01
*TROP.+2	15.73	14.59	12.47	12.28	13.70	16.17	16.19	13.20	11.35	16.49	22.16	22.66	22.49	22.61

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XIV. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
5	1.72	1.85	2.08	1.83	2.50	2.50	2.13	3.45	4.05	4.03	3.18	3.18	4.82	5.07
6	1.77	1.73	1.79	1.91	2.26	2.49	2.41	2.66	3.51	6.86	4.10	2.86	5.23	5.32
7	1.78	2.49	1.94	1.85	2.09	3.91		2.39	2.99	4.86	3.92	3.01	5.28	5.91
8	2.03	1.96	1.94	1.79	2.01	4.11	3.23	2.25	2.60	4.68	4.13	3.14	4.39	5.52
9	2.09	2.34	1.89	1.90	2.07	3.97	7.33	2.01	2.58	3.46	3.93	2.60	3.67	4.03
10	2.00	3.37	1.81	1.76	4.68	8.48	9.80	4.82	2.81	3.81	3.13	2.51	2.89	2.85
11	1.89	2.53	2.45	2.28	4.65	7.49	11.62	4.97	2.93	3.15	2.81	2.39	2.37	2.32
12	1.90	2.25	2.71	5.34	3.47	6.46	14.01	4.74	2.85	3.00	2.82	2.32	2.19	2.17
13	1.95	2.23	2.07	7.20	3.39	6.20	9.33	4.00	3.06	2.45	2.49	2.28	2.15	2.16
14	2.02	2.06	1.97	3.80	3.29	9.76	7.35	3.37	2.37	2.42	2.44	2.27	2.22	2.25
15	2.13	2.07	1.78	1.95	4.40	7.69	8.57	3.26	1.97	2.64	2.58	2.41	2.32	2.36
16	2.20	2.17	1.91	1.81	5.49	9.34	6.69	2.81	2.14	2.80	2.88	2.51	2.45	2.46
17	2.22	2.30	2.15	1.98	5.07	9.23	6.08	2.37	2.65	2.84	3.07	2.66	2.52	2.48
18	2.22	2.37	2.42	2.29	2.63	4.66	4.28	2.48	2.82	2.77	2.91	2.87	2.52	2.43
19	2.19	2.35	2.58	2.69	2.77	2.97	3.34	3.10	2.98	2.87	2.78	2.70	2.46	2.38
20	2.16	2.31	2.50	2.89	3.51	3.81	4.02	4.08	3.23	2.89	2.73	2.66	2.38	2.33
21	2.09	2.27	2.43	2.81	3.91	4.65	4.88	4.27	3.14	2.79	2.78	2.43	2.19	2.16
22	1.99	2.23	2.38	2.65	3.44	4.16	4.14	3.56	2.95	2.68	2.97	2.17	1.99	1.91
23	1.85	2.18	2.36	2.62	3.03	3.43	3.38	3.18	2.85	2.55	2.66	1.95	1.76	1.71
24	1.74	2.08	2.27	2.61	2.97	3.35	3.32	3.17	2.72	2.32	2.02	1.73	1.57	1.55
25	1.66	2.07	2.23	2.75	3.13	3.51	3.42	3.14	2.52	2.05	1.71	1.59	1.48	1.45
26	1.57	2.00	2.20	2.84	3.29	3.64	3.34	2.80	2.22	1.85	1.60	1.49	1.40	1.37
27	1.48	1.91	2.17	2.80	3.33	3.63	3.20	2.46	1.96	1.70	1.50	1.41	1.33	1.31
28	1.40	1.77	2.07	2.66	3.30	3.54	2.99	2.21	1.81	1.58	1.42	1.34	1.28	1.27
29	1.34	1.64	1.98	2.36	3.17	3.46	2.73	2.06	1.67	1.48	1.36	1.29	1.25	1.23
30	1.29	1.54	1.82	2.20	2.95	3.31	2.59	1.88	1.56	1.43	1.31	1.25	1.22	1.21
31	1.25	1.45	1.69	2.03	2.67	3.14	2.40	1.80	1.49	1.37	1.28	1.22	1.20	1.20
32	1.23	1.37	1.58	1.87	2.42	2.85	2.26	1.67	1.43	1.33	1.26	1.20	1.18	1.18
33	1.21	1.32	1.50	1.73	2.16	2.55	2.11	1.60	1.39	1.30	1.25	1.19	1.17	1.17
34	1.21	1.27	1.43	1.60	1.94	2.31	1.98	1.52	1.36	1.28	1.24	1.18	1.17	1.16
35	1.22	1.24	1.37	1.49	1.75	2.10	1.86	1.47	1.33	1.34	1.23	1.17	1.16	1.16
36	1.22	1.22	1.31	1.40	1.57	1.91	1.74	1.42	1.31	1.30	1.23	1.17	1.16	1.15
37	1.23	1.23	1.27	1.33	1.45	1.75	1.64	1.38	1.29	1.28	1.23	1.17	1.15	1.15
38	1.24	1.23	1.25	1.28	1.37	1.62	1.55	1.34	1.28	1.26	1.23	1.17	1.15	1.15
39	1.25	1.22	1.24	1.24	1.31	1.52	1.49	1.30	1.28	1.26	1.23	1.19	1.15	1.14
40	1.27	1.23	1.24	1.23	1.26	1.43	1.43	1.28	1.28	1.25	1.24	1.20	1.17	1.14

TABLE XIV. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
10	8.04	17.91	11.53	2.42	35.52	14.91	56.42	32.86	15.82	27.80	25.09	15.48	16.66	16.65
11	7.40	12.72	9.53	8.57	25.48	14.17	35.38	25.75	13.70	19.74	18.07	12.78	14.95	14.77
12	6.89	9.09	8.48	13.24	13.90	13.44	28.45	18.63	12.32	15.74	15.89	11.62	13.25	13.19
13	6.40	8.06	7.45	13.46	14.10	14.22	22.01	15.85	11.11	12.48	13.55	10.58	11.77	11.82
14	5.95	7.27	6.39	10.33	12.48	15.22	20.78	13.23	9.32	11.16	12.24	9.31	10.63	10.74
15	5.51	6.63	5.67	7.52	14.35	17.65	20.19	11.36	7.99	10.18	11.44	8.80	9.63	9.67
16	4.95	6.09	5.58	6.22	12.94	16.31	16.35	9.74	7.54	9.54	10.83	7.75	8.59	8.45
17	4.30	5.50	5.74	5.91	10.58	14.38	13.07	8.84	7.64	8.71	9.68	6.62	7.39	7.08
18	3.65	4.80	5.72	6.05	9.27	11.37	11.01	8.83	7.84	7.82	7.96	5.63	6.10	5.74
19	3.05	4.03	5.26	6.05	8.96	9.99	10.35	9.44	7.65	6.83	6.29	4.61	4.87	4.58
20	2.54	3.31	4.46	5.57	8.88	9.92	10.40	9.61	6.89	5.70	5.01	3.69	3.82	3.60
21	2.08	2.71	3.64	4.69	7.97	9.23	9.52	8.52	5.74	4.60	4.14	2.87	2.92	2.75
22	1.64	2.20	2.93	3.75	6.21	7.51	7.50	6.63	4.50	3.63	3.45	2.17	2.13	2.00
23	1.25	1.77	2.35	2.99	4.53	5.62	5.45	4.88	3.45	2.81	2.63	1.57	1.49	1.40
24	.95	1.42	1.88	2.45	3.38	4.27	4.02	3.63	2.63	2.13	1.80	1.10	1.02	.96
25	.72	1.15	1.55	2.12	2.69	3.43	3.12	2.78	1.99	1.57	1.18	.78	.72	.67
26	.54	.95	1.30	1.87	2.26	2.90	2.54	2.14	1.48	1.14	.80	.55	.52	.47
27	.41	.77	1.08	1.63	1.94	2.52	2.10	1.63	1.10	.83	.57	.40	.38	.34
28	.31	.61	.89	1.36	1.67	2.20	1.75	1.23	.82	.61	.42	.29	.27	.25
29	.23	.48	.72	1.09	1.42	1.91	1.46	.93	.62	.45	.31	.22	.20	.18
30	.17	.37	.57	.86	1.16	1.64	1.22	.71	.46	.33	.23	.16	.14	.13
31	.12	.28	.44	.67	.92	1.36	1.02	.53	.35	.25	.17	.11	.10	.09
32	.09	.21	.33	.50	.71	1.10	.85	.41	.26	.18	.12	.08	.07	.07
33	.06	.15	.24	.37	.52	.87	.70	.30	.19	.14	.08	.06	.05	.05
34	.05	.11	.18	.27	.38	.66	.57	.23	.14	.11	.06	.04	.04	.03
35	.03	.08	.13	.19	.27	.48	.43	.17	.10	.08	.04	.03	.03	.02
36	.03	.05	.09	.14	.19	.34	.32	.12	.07	.06	.03	.02	.02	.02
37	.02	.04	.06	.10	.14	.24	.24	.09	.05	.05	.02	.02	.01	.01
38	.02	.03	.05	.07	.09	.17	.17	.07	.04	.04	.02	.01	.01	.01
39	.01	.02	.03	.05	.06	.12	.12	.05	.03	.03	.01	.01	.01	.01
40	.01	.01	.02	.03	.04	.09	.09	.03	.02	.02	.01	.01	.01	.00
*TROP.+2	48.58	50.06	46.57	47.17	57.42	67.92	66.01	54.78	43.92	62.27	88.32	77.63	95.96	96.13

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XIV. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
10	2.66	2.85	2.98	1.90	1.86	1.55	1.98	2.45	2.32	3.19	3.41	3.03	2.62	2.36
11	2.78	2.82	2.90	2.36	2.25	1.53	1.33	2.61	2.67	3.04	3.21	2.98	3.34	3.20
12	2.93	3.01	3.00	2.54	2.38	1.50	1.19	2.76	3.01	3.24	3.55	3.22	4.05	4.07
13	3.05	3.28	3.17	2.74	2.53	1.66	1.24	2.97	3.29	3.53	3.90	3.42	4.50	4.53
14	3.11	3.55	3.40	2.89	2.75	1.84	1.47	3.18	3.54	3.87	4.20	3.51	4.65	4.65
15	3.12	3.61	3.60	3.21	3.11	1.89	1.87	3.43	3.85	4.04	4.36	3.52	4.59	4.55
16	3.07	3.57	3.76	3.72	3.34	2.12	1.99	3.79	4.12	4.13	4.32	3.45	4.42	4.37
17	3.01	3.49	3.83	4.12	3.41	2.52	2.41	4.15	4.18	4.10	4.13	3.31	4.19	4.14
18	2.97	3.37	3.77	4.04	3.78	3.26	2.82	4.46	4.10	4.02	3.91	3.19	3.97	3.94
19	2.94	3.28	3.69	3.87	4.28	3.84	3.45	4.43	3.99	3.91	3.71	3.10	3.78	3.78
20	2.95	3.22	3.64	3.75	4.54	4.21	4.01	4.20	3.92	3.79	3.55	3.05	3.69	3.68
21	2.99	3.18	3.63	3.69	4.31	4.21	4.06	4.05	3.86	3.71	3.45	3.06	3.69	3.66
22	3.02	3.15	3.59	3.66	4.10	4.09	3.95	4.06	3.80	3.70	3.45	3.14	3.75	3.73
23	3.05	3.13	3.53	3.61	4.00	4.12	3.98	4.10	3.72	3.73	3.53	3.26	3.81	3.82
24	3.07	3.14	3.49	3.51	3.84	4.11	3.95	3.98	3.67	3.83	3.67	3.40	3.89	3.89
25	3.11	3.19	3.56	3.48	3.57	3.93	3.75	3.84	3.71	4.00	3.83	3.46	4.00	3.96
26	3.18	3.28	3.66	3.51	3.38	3.79	3.66	3.90	3.88	4.21	3.97	3.52	4.10	4.00
27	3.28	3.43	3.76	3.64	3.33	3.84	3.76	4.14	4.15	4.38	4.16	3.59	4.15	4.01
28	3.39	3.63	3.91	3.84	3.40	4.01	4.01	4.43	4.45	4.52	4.33	3.67	4.13	3.96
29	3.46	3.86	4.12	4.13	3.55	4.26	4.36	4.68	4.70	4.61	4.47	3.72	4.02	3.81
30	3.52	4.07	4.36	4.45	3.75	4.52	4.77	4.85	4.91	4.69	4.48	3.71	3.81	3.56
31	3.58	4.25	4.53	4.70	3.96	4.79	5.21	4.96	5.06	4.72	4.28	3.63	3.54	3.27
32	3.45	4.42	4.62	4.86	4.15	5.10	5.72	5.02	5.05	4.73	3.96	3.52	3.25	2.96
33	3.18	4.59	4.62	4.92	4.30	5.45	6.20	5.01	4.86	4.41	3.63	3.40	2.98	2.68
34	2.99	4.73	4.56	5.00	4.45	5.68	6.54	4.89	4.60	4.17	3.23	3.34	2.84	2.42
35	3.05	4.71	4.46	5.13	4.67	5.71	6.57	4.66	4.34	3.86	2.86	4.04	2.77	2.16
36	2.71	4.28	4.33	5.28	5.01	5.63	6.45	4.37	4.03	3.48	2.56	9.97	2.59	1.89
37	2.70	3.58	4.14	5.33	5.58	5.59	6.31	4.10	3.50	3.24	2.33	12.39	2.63	1.64
38	3.32	3.08	3.92	5.18	6.15	5.56	6.12	3.88	3.00	3.46	2.20	7.40	3.11	1.42
39	5.11	2.77	3.80	4.88	5.92	5.52	5.80	3.68	2.66	3.68	2.15	8.70	2.57	1.22
40	5.28	2.69	3.78	4.48	5.20	5.45	5.34	3.24	2.46	4.11	2.12	5.75	1.63	1.07

TABLE XIV. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
5	248.3	256.4	265.4	270.6	273.4	273.5	273.9	273.1	270.6	263.5	254.5	246.1	247.5	246.6
6	241.8	249.8	259.0	264.6	267.5	267.6	267.9	266.7	264.4	256.8	247.8	239.5	241.0	240.1
7	235.2	242.3	251.7	257.6	260.9	261.2	261.4	260.1	257.7	249.7	241.0	232.9	234.4	233.3
8	229.7	236.0	244.6	250.6	254.2	254.6	254.8	253.5	251.0	242.7	234.3	227.0	229.1	227.6
9	224.8	229.8	237.9	243.7	247.2	247.9	247.9	246.7	244.0	235.7	227.8	221.6	224.4	222.7
10	222.0	224.6	231.2	236.7	240.1	241.0	240.8	239.8	237.1	229.3	222.6	219.2	224.2	223.6
11	221.5	221.2	225.0	229.8	233.1	233.6	233.5	233.0	230.3	223.8	219.9	219.5	225.4	225.1
12	221.2	219.0	219.8	222.9	225.3	225.8	225.9	225.3	223.5	219.4	218.7	220.2	226.4	226.3
13	221.1	218.1	216.4	217.1	218.0	218.1	218.4	218.0	217.3	216.8	219.0	221.1	227.0	227.0
14	220.9	217.3	213.2	212.0	211.1	210.6	211.0	211.1	211.6	214.5	218.9	221.3	227.1	227.2
15	220.5	216.6	211.2	207.7	205.2	204.3	204.8	205.6	207.8	213.0	218.6	221.3	226.6	226.9
16	220.1	216.0	209.1	203.6	199.6	198.5	199.1	200.7	204.4	211.5	218.2	221.2	226.1	226.6
17	219.8	215.9	208.4	201.2	196.0	194.9	195.4	197.5	202.1	210.6	217.7	220.9	225.6	226.2
18	219.6	216.1	208.9	202.2	197.2	196.5	196.8	198.2	202.1	210.2	217.2	220.6	225.1	225.7
19	219.5	216.4	209.8	203.5	198.8	198.6	198.8	199.6	202.9	210.4	217.1	220.5	224.8	225.5
20	219.3	216.7	211.4	206.2	202.5	202.4	202.7	203.5	206.4	211.9	217.3	220.5	224.8	225.5
21	219.4	217.1	213.0	208.9	206.1	206.2	206.5	207.2	209.6	213.4	217.7	220.7	224.9	225.5
22	219.5	217.8	214.7	211.6	209.5	209.6	210.0	210.3	212.1	215.0	218.3	221.0	225.0	225.6
23	219.7	218.4	216.5	214.3	212.8	213.1	213.4	213.4	214.6	216.5	219.0	221.3	225.0	225.7
24	220.0	219.1	218.2	217.0	216.1	216.6	216.7	216.5	217.1	218.1	219.6	221.9	225.1	225.8
25	220.7	220.2	219.8	219.2	218.7	219.1	219.3	219.1	219.5	220.0	220.9	223.2	226.3	226.8
26	221.4	221.2	221.5	221.4	221.2	221.7	221.9	221.7	221.9	221.8	222.1	224.5	227.5	228.0
27	222.2	222.3	223.1	223.6	223.8	224.3	224.6	224.3	224.4	223.7	223.4	225.8	228.8	229.1
28	222.9	223.3	224.7	225.8	226.4	226.9	227.2	226.9	226.8	225.5	224.6	227.0	230.1	230.2
29	223.6	224.4	226.4	227.9	229.0	229.4	229.8	229.5	229.2	227.4	225.8	228.3	231.4	231.3
30	224.3	225.4	228.0	230.1	231.6	232.0	232.4	232.1	231.6	229.3	227.1	229.6	232.6	232.5

TABLE XIV. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
31	225.1	226.5	229.6	232.3	234.1	234.6	235.0	234.7	234.0	231.1	228.3	230.9	233.9	233.6
32	226.3	227.8	231.0	234.1	236.1	236.6	236.9	236.6	236.0	233.3	230.7	232.8	236.1	235.6
33	227.5	229.1	232.2	235.5	237.7	238.3	238.5	238.2	237.7	235.6	233.3	234.7	239.2	238.6
34	228.8	230.4	233.5	237.0	239.3	240.0	240.1	239.8	239.4	237.9	235.9	236.6	242.3	241.6
35	230.0	231.7	234.7	238.4	241.0	241.7	241.7	241.4	241.1	240.2	238.4	238.5	245.4	244.6
36	231.6	233.2	236.0	239.8	242.6	243.4	243.3	242.9	242.8	242.5	241.0	240.5	248.5	247.6
37	233.5	235.3	238.1	242.0	244.7	245.6	245.5	245.4	245.2	245.0	243.4	242.6	251.1	250.1
38	235.4	237.3	240.4	244.5	247.3	248.3	248.2	248.1	247.8	247.6	245.8	244.8	253.4	252.4
39	237.4	239.4	242.6	247.0	249.8	250.9	250.9	250.9	250.4	250.2	248.2	246.9	255.7	254.7
40	239.3	241.4	244.9	249.4	252.4	253.6	253.6	253.7	253.1	252.7	250.5	249.1	258.1	257.0
41	241.2	243.5	247.2	251.9	254.9	256.2	256.3	256.5	255.7	255.3	252.9	251.2	260.4	259.3
42	243.1	245.5	249.5	254.4	257.5	258.8	259.0	259.2	258.3	257.8	255.3	253.4	262.7	261.5
43	245.0	247.4	251.5	256.9	260.1	261.5	261.7	262.0	260.9	260.4	257.3	255.2	265.0	263.8
44	246.8	249.1	253.1	258.3	261.6	263.0	263.1	263.3	262.3	261.5	258.6	256.5	266.5	265.2
45	248.7	250.9	254.6	259.6	262.7	264.1	264.2	264.3	263.4	262.6	259.8	257.9	267.4	266.1
46	250.5	252.6	256.2	260.9	263.8	265.1	265.2	265.3	264.5	263.7	261.1	259.2	268.2	267.1
47	252.3	254.3	257.7	262.2	264.9	266.1	266.2	266.3	265.5	264.8	262.3	260.6	269.1	268.0
48	252.9	255.4	259.2	263.5	266.0	267.1	267.2	267.3	266.6	265.9	263.6	261.8	270.0	269.0
49	253.4	255.7	259.3	263.8	266.6	267.7	267.7	267.6	267.0	266.2	263.5	261.7	270.9	269.8
50	254.0	256.0	259.3	263.5	266.2	267.2	267.2	267.1	266.5	265.8	263.3	261.6	270.3	269.2
51	254.5	256.3	259.4	263.3	265.7	266.7	266.7	266.6	266.1	265.4	263.1	261.5	269.6	268.6
52	255.0	256.6	259.4	263.0	265.3	266.1	266.2	266.2	265.6	265.0	262.8	261.4	269.0	268.1
53	255.5	257.0	259.5	262.7	264.9	265.6	265.7	265.7	265.1	264.6	262.6	261.3	268.3	267.5
54	256.0	257.3	259.5	262.4	264.5	265.1	265.2	265.2	264.7	264.2	262.4	261.2	267.7	266.9
55	256.6	257.6	259.6	262.2	264.0	264.6	264.7	264.7	264.2	263.8	262.1	261.1	267.0	266.3

TABLE XIV. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -													
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.	75.
1000.0	-.00	.09	.14	.14	.11	.10	.10	.09	.12	.13	.12	.11	.09	.14
850.0	1.30	1.42	1.51	1.54	1.52	1.52	1.52	1.52	1.52	1.50	1.45	1.39	1.38	1.41
700.0	2.81	2.98	3.12	3.16	3.17	3.16	3.17	3.17	3.16	3.09	2.99	2.89	2.89	2.90
500.0	5.32	5.56	5.77	5.87	5.90	5.90	5.91	5.90	5.86	5.74	5.55	5.37	5.38	5.39
400.0	6.89	7.17	7.44	7.58	7.62	7.63	7.63	7.62	7.57	7.39	7.16	6.93	6.95	6.95
300.0	8.83	9.15	9.48	9.66	9.74	9.75	9.75	9.73	9.65	9.42	9.12	8.85	8.88	8.86
250.0	10.02	10.35	10.71	10.91	11.01	11.03	11.03	11.00	10.91	10.64	10.32	10.02	10.07	10.05
200.0	11.47	11.80	12.16	12.38	12.50	12.51	12.52	12.49	12.39	12.10	11.76	11.46	11.55	11.53
150.0	13.34	13.64	13.98	14.20	14.32	14.33	14.33	14.31	14.21	13.93	13.61	13.33	13.47	13.45
100.0	15.97	16.22	16.49	16.64	16.72	16.72	16.73	16.71	16.66	16.46	16.22	15.97	16.18	16.16
70.0	18.27	18.49	18.69	18.78	18.80	18.79	18.75	18.76	18.75	18.65	18.49	18.27	18.51	18.49
50.0	20.44	20.64	20.78	20.82	20.81	20.79	20.76	20.77	20.79	20.74	20.64	20.45	20.73	20.71
30.0	23.74	23.92	24.03	24.03	23.99	23.98	23.95	23.95	24.00	23.99	23.93	23.78	24.11	24.10
10.0	30.95	31.14	31.32	31.36	31.33	31.33	31.29	31.30	31.34	31.26	31.17	31.11	31.52	31.51
5.0	35.48	35.80	36.12	36.32	36.45	36.43	36.37	36.28	36.33	36.16	35.95	35.85	36.41	36.37
2.0	41.90	42.30	42.74	43.08	43.32	43.33	43.27	43.17	43.20	43.01	42.71	42.55	43.41	43.33
1.0	47.05	47.49	47.97	48.39	48.66	48.70	48.61	48.54	48.58	48.45	48.14	47.93	49.04	48.93
.4	54.06	54.51	55.04	55.51	55.77	55.85	55.81	55.79	55.78	55.63	55.30	55.08	56.33	56.22
TROP.	10.00	11.65	13.28	14.79	16.19	16.41	16.34	16.43	15.83	13.06	10.86	9.64	8.85	8.71

TABLE XV. SEASONALLY AVERAGED EXTINCTION AND TEMPERATURE DATA FOR SUMMER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	9.22	7.59	7.59	6.27	7.02	9.85	9.54	13.35	7.45	13.82	36.23	14.85	13.75
6	7.62	7.57	5.29	5.38	5.41	7.39	5.96	12.07	7.66	9.83	18.02	15.92	14.59
7	5.62	7.96	6.52	5.72	4.23	5.75	4.97	7.16	6.13	7.16	13.10	13.86	18.75
8	4.63	6.13	4.94	6.67	3.30	5.75	5.01	4.09	3.71	5.23	12.40	13.15	22.87
9	3.86	6.80	3.98	5.11	3.52	8.84	11.21	8.37	3.72	4.41	11.61	17.56	25.51
10	3.73	4.70	5.55	4.23	4.56	11.10	11.31	16.85	3.58	5.78	9.92	16.17	19.82
11	3.53	3.80	4.33	2.91	3.67	4.30	13.99	11.96	3.12	4.28	8.99	14.06	14.70
12	3.20	2.76	2.78	1.95	4.19	4.53	25.23	11.37	4.30	4.66	7.35	11.96	12.49
13	2.86	2.19	2.40	1.86	5.53	5.00	14.02	10.03	6.01	4.62	6.01	10.39	10.55
14	2.67	1.92	1.86	1.85	4.45	6.53	7.59	7.20	8.43	4.46	5.97	9.16	8.27
15	2.50	1.87	1.66	1.51	5.35	7.00	4.31	5.36	6.82	5.06	6.61	8.12	7.13
16	2.25	1.86	1.66	1.39	4.55	6.21	5.29	6.33	5.99	6.10	6.80	7.10	6.36
17	1.97	1.86	1.70	1.44	2.68	3.93	4.07	4.72	5.82	6.22	6.34	6.22	5.41
18	1.66	1.76	1.76	1.53	1.63	2.34	2.95	4.69	5.50	5.65	5.33	5.01	5.03
19	1.35	1.56	1.74	1.65	1.60	1.73	2.39	3.84	4.32	4.52	3.96	4.40	4.88
20	1.08	1.29	1.55	1.69	1.77	2.00	2.19	2.53	2.86	3.17	2.99	3.51	3.37
21	.82	1.05	1.24	1.47	1.80	2.14	2.14	2.01	2.06	2.86	2.47	1.88	1.37
22	.60	.87	.96	1.09	1.40	1.73	1.77	1.72	1.73	3.31	1.68	.85	.49
23	.41	.70	.76	.83	1.00	1.26	1.28	1.44	1.65	1.55	.98	.45	.27
24	.28	.56	.60	.67	.83	1.01	.99	.99	1.09	.68	.49	.28	.19
25	.20	.41	.47	.56	.72	.89	.83	.75	.64	.43	.29	.19	.14
26	.14	.30	.34	.43	.59	.76	.66	.54	.44	.30	.20	.14	.10
27	.10	.22	.25	.31	.45	.63	.51	.39	.30	.23	.15	.10	.07
28	.07	.15	.18	.23	.33	.49	.39	.29	.22	.17	.11	.07	.05
29	.05	.11	.13	.17	.25	.38	.31	.22	.17	.12	.08	.05	.04
30	.03	.07	.09	.12	.18	.29	.23	.16	.12	.09	.06	.04	.03
31	.03	.05	.06	.09	.13	.21	.18	.12	.09	.07	.05	.03	.02
32	.02	.04	.05	.06	.09	.15	.13	.09	.07	.05	.04	.03	.02
33	.02	.03	.03	.04	.07	.11	.09	.06	.05	.03	.03	.02	.01
34	.01	.02	.02	.03	.05	.08	.07	.05	.04	.03	.02	.02	.01
35	.01	.02	.02	.03	.03	.05	.05	.04	.03	.02	.02	.02	.01
36	.01	.01	.01	.02	.02	.04	.04	.03	.03	.02	.02	.01	.01
37	.01	.01	.01	.02	.02	.03	.03	.02	.02	.02	.02	.01	.01
38	.01	.01	.01	.01	.01	.02	.02	.02	.02	.01	.01	.01	.01
39	.01	.01	.01	.01	.01	.02	.02	.02	.01	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
* TROP.+2	20.18	18.36	15.61	11.25	12.28	14.68	15.11	17.90	21.56	26.59	33.85	50.69	58.29

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XV. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	2.47	2.20	2.21	2.02	2.15	2.62	2.56	3.22	2.21	3.23	7.05	3.41	3.18
6	2.37	2.32	1.92	1.97	1.99	2.33	2.08	3.19	2.42	2.79	4.23	3.89	3.58
7	2.13	2.59	2.30	2.15	1.85	2.17	1.99	2.45	2.23	2.43	3.63	3.74	4.75
8	2.07	2.36	2.07	2.49	1.74	2.31	2.14	1.74	1.83	2.17	3.77	3.93	6.16
9	2.00	2.70	1.99	2.27	1.89	3.24	3.88	3.14	1.92	2.10	3.91	5.47	7.50
10	2.12	2.34	2.57	2.18	2.28	4.07	4.10	5.75	1.99	2.61	3.79	5.58	6.70
11	2.23	2.25	2.37	1.91	2.15	2.35	5.42	4.69	1.98	2.34	3.85	5.54	5.88
12	2.30	2.05	2.02	1.70	2.47	2.62	9.92	5.05	2.51	2.65	3.67	5.46	5.84
13	2.36	1.98	2.03	1.76	3.25	2.98	6.52	4.92	3.42	2.87	3.51	5.52	5.75
14	2.49	2.01	1.92	1.88	3.00	3.98	4.43	4.28	4.83	3.06	3.90	5.63	5.33
15	2.63	2.15	1.97	1.82	3.80	4.65	3.24	3.74	4.56	3.73	4.72	5.77	5.36
16	2.72	2.34	2.14	1.89	3.78	4.76	4.29	4.85	4.67	4.82	5.43	5.85	5.49
17	2.75	2.56	2.36	2.07	2.88	3.77	3.89	4.37	5.15	5.54	5.79	5.95	5.45
18	2.73	2.72	2.65	2.35	2.38	2.92	3.49	4.99	5.65	5.82	5.69	5.63	5.81
19	2.65	2.78	2.90	2.72	2.61	2.72	3.41	4.82	5.28	5.52	5.07	5.73	6.37
20	2.54	2.72	2.99	3.08	3.13	3.41	3.64	4.02	4.38	4.77	4.63	5.37	5.25
21	2.39	2.64	2.87	3.14	3.57	4.06	4.07	3.88	3.91	5.07	4.51	3.68	2.99
22	2.19	2.59	2.70	2.88	3.38	3.93	4.01	3.93	3.92	6.52	3.80	2.43	1.84
23	1.95	2.51	2.59	2.69	3.02	3.53	3.58	3.89	4.29	4.00	2.91	1.88	1.54
24	1.78	2.39	2.47	2.62	2.98	3.43	3.36	3.34	3.51	2.55	2.13	1.64	1.44
25	1.65	2.22	2.35	2.59	3.02	3.52	3.33	3.08	2.75	2.17	1.78	1.51	1.37
26	1.54	2.04	2.16	2.42	2.97	3.52	3.17	2.77	2.41	1.96	1.64	1.43	1.31
27	1.44	1.88	2.01	2.22	2.74	3.47	2.97	2.49	2.14	1.87	1.54	1.36	1.26
28	1.36	1.73	1.85	2.08	2.51	3.24	2.78	2.33	2.00	1.76	1.46	1.30	1.22
29	1.29	1.60	1.71	1.92	2.31	3.04	2.64	2.16	1.88	1.63	1.40	1.26	1.19
30	1.25	1.48	1.58	1.77	2.13	2.78	2.45	2.00	1.75	1.53	1.36	1.23	1.17
31	1.22	1.39	1.48	1.64	1.95	2.54	2.26	1.84	1.64	1.45	1.32	1.21	1.16
32	1.20	1.33	1.39	1.53	1.79	2.30	2.07	1.72	1.55	1.38	1.30	1.20	1.15
33	1.19	1.28	1.33	1.45	1.65	2.08	1.90	1.62	1.50	1.32	1.28	1.20	1.13
34	1.19	1.24	1.29	1.38	1.54	1.88	1.78	1.55	1.45	1.29	1.26	1.20	1.13
35	1.20	1.22	1.26	1.34	1.44	1.71	1.68	1.49	1.42	1.28	1.25	1.20	1.12
36	1.23	1.21	1.24	1.31	1.38	1.58	1.58	1.44	1.38	1.28	1.26	1.20	1.12
37	1.26	1.21	1.22	1.29	1.33	1.48	1.49	1.41	1.36	1.28	1.27	1.21	1.12
38	1.29	1.22	1.21	1.28	1.29	1.42	1.42	1.38	1.34	1.29	1.26	1.23	1.12
39	1.31	1.23	1.21	1.28	1.26	1.37	1.37	1.37	1.33	1.31	1.26	1.23	1.13
40	1.34	1.24	1.21	1.28	1.25	1.34	1.34	1.36	1.34	1.34	1.26	1.24	1.15

TABLE XV. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
10	12.43	13.14	12.12	8.66	8.82	9.44	24.25	34.29	3.25	9.32	28.48	56.07	51.92
11	11.57	10.65	10.58	7.61	8.26	9.89	24.90	25.15	6.85	9.74	21.18	39.34	42.62
12	11.37	9.01	9.18	6.58	7.48	9.95	23.16	12.80	8.68	10.70	17.91	35.47	37.06
13	10.73	8.09	8.48	6.32	8.39	9.51	16.89	11.34	10.86	11.97	16.91	32.65	32.70
14	10.04	7.47	7.75	6.34	8.81	10.19	12.78	11.50	11.35	13.45	18.01	30.34	28.50
15	9.21	7.21	7.28	6.01	9.42	10.74	10.54	10.09	14.51	15.90	19.82	27.92	24.78
16	8.15	7.05	7.13	5.94	9.17	11.33	11.34	12.61	17.17	18.42	20.86	24.86	21.17
17	6.92	6.80	7.13	6.13	8.40	9.99	10.35	13.98	17.66	19.35	20.09	20.99	17.71
18	5.64	6.27	7.06	6.43	7.78	8.79	9.49	14.19	17.17	18.34	17.46	16.91	14.90
19	4.46	5.45	6.65	6.60	7.57	8.27	8.96	12.75	14.60	15.43	13.88	13.26	12.24
20	3.47	4.47	5.80	6.31	7.42	8.35	8.45	10.42	11.19	12.09	10.49	9.79	9.17
21	2.65	3.54	4.67	5.44	6.74	7.94	7.65	8.36	8.33	9.46	7.95	6.70	6.12
22	1.97	2.77	3.60	4.30	5.48	6.66	6.38	6.62	6.29	7.28	5.93	4.37	3.76
23	1.41	2.17	2.73	3.28	4.20	5.16	4.97	5.06	4.83	5.20	4.14	2.75	2.23
24	.99	1.69	2.08	2.52	3.25	4.02	3.83	3.76	3.66	3.51	2.70	1.71	1.34
25	.69	1.31	1.60	1.99	2.60	3.26	3.01	2.82	2.71	2.35	1.73	1.08	.83
26	.48	.99	1.23	1.58	2.13	2.75	2.40	2.14	1.99	1.62	1.14	.71	.55
27	.33	.74	.95	1.26	1.75	2.35	1.94	1.64	1.48	1.16	.78	.49	.38
28	.23	.54	.72	.99	1.42	1.99	1.57	1.28	1.12	.84	.56	.35	.27
29	.16	.39	.54	.78	1.13	1.66	1.26	.98	.85	.62	.42	.26	.19
30	.12	.28	.41	.59	.87	1.34	1.00	.75	.64	.47	.32	.19	.14
31	.08	.21	.30	.44	.66	1.04	.78	.56	.48	.36	.24	.14	.10
32	.06	.15	.22	.33	.49	.79	.60	.42	.36	.27	.18	.11	.07
33	.04	.11	.16	.24	.37	.59	.45	.32	.28	.20	.14	.08	.05
34	.03	.08	.11	.18	.27	.43	.33	.24	.21	.14	.10	.06	.04
35	.02	.05	.08	.13	.20	.31	.25	.18	.15	.10	.07	.05	.03
36	.01	.04	.06	.09	.14	.22	.18	.13	.11	.07	.06	.04	.02
37	.01	.03	.04	.06	.10	.16	.13	.09	.08	.05	.04	.03	.02
38	.01	.02	.03	.05	.07	.11	.09	.07	.06	.04	.03	.02	.01
39	.01	.01	.02	.03	.05	.08	.06	.05	.04	.03	.03	.02	.01
40	.00	.01	.01	.02	.03	.06	.05	.04	.03	.02	.02	.02	.01
*TROP.+2	71.27	65.53	61.50	44.24	51.26	59.77	56.66	66.34	76.70	89.59	114.31	172.40	190.38

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XV. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
10	3.34	3.23	2.78	2.43	2.01	1.70	.51	2.13	1.48	2.11	2.44	3.31	2.67
11	3.35	3.17	3.07	2.74	2.39	2.29	1.88	2.13	2.09	2.22	2.18	2.69	2.67
12	3.53	3.27	3.30	3.04	2.69	2.78	2.83	4.50	2.31	2.45	2.25	2.83	2.85
13	3.65	3.42	3.64	3.39	2.96	2.96	2.38	6.68	2.40	2.61	2.51	3.03	3.08
14	3.72	3.61	3.93	3.67	3.23	3.06	2.39	2.13	2.57	2.85	2.82	3.24	3.28
15	3.71	3.74	4.12	3.89	3.58	3.10	2.45	1.81	2.71	3.07	3.06	3.42	3.42
16	3.63	3.76	4.19	4.09	3.87	3.16	2.74	2.59	2.82	3.19	3.20	3.50	3.42
17	3.52	3.73	4.17	4.20	4.10	3.38	3.06	2.95	4.48	3.30	3.30	3.46	3.29
18	3.38	3.64	4.08	4.20	4.29	3.78	3.34	3.21	3.25	3.41	3.37	3.33	3.16
19	3.26	3.54	3.96	4.10	4.41	4.18	3.55	3.54	3.36	3.48	3.42	3.23	3.14
20	3.19	3.41	3.83	3.97	4.32	4.28	3.73	3.71	3.55	3.47	3.50	3.29	3.40
21	3.17	3.27	3.69	3.85	4.09	4.13	3.75	3.89	3.72	3.46	3.66	3.67	4.18
22	3.17	3.14	3.58	3.77	3.91	3.93	3.69	3.86	3.73	3.52	3.87	4.43	5.38
23	3.20	3.05	3.47	3.72	3.83	3.81	3.64	3.69	3.64	3.68	4.18	5.10	6.18
24	3.24	3.04	3.38	3.64	3.75	3.73	3.63	3.59	3.65	4.00	4.52	5.35	6.24
25	3.23	3.09	3.39	3.64	3.64	3.63	3.61	3.64	3.86	4.50	4.89	5.20	5.74
26	3.18	3.17	3.49	3.74	3.66	3.61	3.61	3.78	4.18	4.87	5.04	4.94	5.31
27	3.17	3.27	3.66	3.95	3.86	3.73	3.72	3.98	4.47	4.87	4.99	4.77	5.08
28	3.27	3.36	3.84	4.21	4.16	3.97	3.89	4.18	4.70	4.79	4.94	4.73	4.92
29	3.44	3.47	4.02	4.47	4.47	4.27	4.05	4.33	4.84	4.84	4.96	4.75	4.74
30	3.60	3.63	4.20	4.69	4.70	4.56	4.21	4.48	4.96	5.06	4.99	4.69	4.49
31	3.80	3.81	4.37	4.87	4.89	4.78	4.40	4.64	5.06	5.35	4.92	4.48	4.20
32	4.31	3.96	4.52	5.01	5.06	4.94	4.57	4.76	5.11	5.60	4.74	4.15	3.92
33	5.07	4.04	4.60	5.10	5.26	5.11	4.67	4.82	5.11	5.72	4.50	3.77	3.60
34	3.63	4.08	4.57	5.09	5.44	5.26	4.70	4.77	4.92	5.49	4.31	3.45	3.25
35	2.21	4.13	4.41	4.91	5.59	5.43	4.68	4.62	4.59	4.79	4.18	3.26	2.96
36	1.65	4.04	4.18	4.55	5.73	5.59	4.63	4.37	4.22	4.18	3.99	3.07	2.88
37	1.49	3.71	3.94	4.10	5.70	5.72	4.55	4.04	3.88	3.76	3.42	2.71	3.19
38	1.70	3.31	3.62	3.61	5.21	5.81	4.45	3.65	3.57	3.48	2.79	2.32	2.81
39	1.57	4.05	3.49	3.15	4.60	5.70	4.38	3.25	3.36	3.86	2.45	1.99	2.11
40	2.30	8.23	4.95	2.75	4.00	5.63	4.30	2.89	3.56	6.36	2.36	1.93	1.87

TABLE XV. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	243.5	252.4	258.5	266.8	271.9	273.4	273.1	273.4	273.6	272.3	268.2	262.7	257.1
6	236.6	245.5	252.0	260.8	266.2	267.7	267.5	267.5	267.5	266.2	262.1	256.6	250.7
7	229.8	238.4	244.8	254.0	259.8	261.4	261.3	261.2	261.5	259.7	255.0	249.5	243.7
8	223.9	231.9	237.9	247.2	253.1	254.8	254.9	254.7	255.1	253.0	248.0	242.3	236.8
9	218.8	225.4	231.2	240.3	246.0	247.7	248.1	247.9	248.0	245.9	240.9	235.1	230.0
10	215.6	220.9	225.6	233.7	238.7	240.5	241.2	241.0	240.7	238.8	234.1	228.9	226.1
11	214.0	218.4	221.5	227.4	231.2	232.9	234.0	233.6	233.1	231.5	228.2	224.9	225.0
12	213.3	217.0	218.5	221.7	224.2	225.2	225.8	225.5	225.6	224.9	224.2	223.2	225.5
13	212.9	216.7	216.9	217.0	217.7	218.1	218.2	217.9	218.7	219.2	221.5	223.4	226.6
14	212.2	216.3	215.4	212.6	211.7	211.7	211.3	211.1	212.4	214.2	219.2	223.7	227.4
15	211.6	215.8	214.3	210.0	207.9	207.5	206.7	206.8	208.8	211.6	217.9	223.5	227.6
16	211.0	215.4	213.2	207.7	205.0	204.4	203.2	203.7	206.6	209.9	216.8	223.4	227.7
17	210.4	215.0	212.5	206.2	202.9	202.0	200.7	201.7	205.0	208.8	216.0	223.1	227.7
18	209.9	214.6	212.1	206.1	202.8	201.6	200.8	202.3	205.5	209.6	216.3	222.7	227.5
19	209.6	214.3	212.1	206.6	203.3	201.7	201.5	203.6	206.3	210.5	216.6	222.4	227.3
20	209.4	214.0	212.9	208.8	206.6	205.5	205.5	207.2	209.7	213.0	217.9	222.9	227.5
21	209.4	214.0	213.8	211.1	209.8	209.2	209.4	210.8	213.0	215.6	219.3	223.3	227.7
22	209.5	214.2	215.0	213.4	212.5	212.1	212.6	213.7	215.2	217.6	220.6	224.1	228.2
23	209.5	214.3	216.2	215.8	215.2	215.0	215.7	216.6	217.5	219.5	222.0	224.9	228.6
24	210.4	214.7	217.5	218.1	217.9	217.9	218.9	219.5	219.8	221.4	223.3	225.6	229.1
25	211.3	215.3	218.9	220.1	220.1	220.2	221.2	221.7	221.8	223.1	224.7	226.9	230.1
26	212.1	215.9	220.3	222.0	222.2	222.3	223.4	223.8	223.7	224.8	226.3	228.5	231.8
27	213.0	216.5	221.7	223.9	224.3	224.5	225.7	225.9	225.6	226.4	227.8	230.2	233.4
28	213.9	217.1	223.0	225.9	226.4	226.7	227.9	228.0	227.5	228.0	229.4	231.8	235.0
29	214.7	217.8	224.4	227.8	228.4	228.8	230.2	230.1	229.4	229.7	230.9	233.4	236.7
30	215.8	218.4	225.8	229.7	230.5	231.0	232.4	232.3	231.3	231.3	232.5	235.1	238.3

TABLE XV. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
31	218.1	219.2	227.2	231.7	232.6	233.1	234.7	234.4	233.2	232.9	234.0	236.7	239.9
32	220.3	220.5	228.4	233.2	234.4	235.0	236.4	236.1	235.0	234.6	235.6	238.4	241.6
33	222.6	221.8	229.6	234.6	235.9	236.5	237.7	237.5	236.5	236.4	237.9	240.9	244.1
34	224.8	223.0	230.8	235.9	237.4	238.0	238.9	238.8	237.9	238.1	240.1	243.4	246.7
35	227.9	224.3	232.1	237.3	238.9	239.5	240.1	240.2	239.4	239.8	242.4	245.9	249.3
36	231.2	226.6	233.5	238.6	240.3	241.0	241.4	241.5	240.9	241.6	244.7	248.3	252.0
37	234.4	228.9	235.8	240.9	242.5	243.2	243.3	243.5	242.7	243.5	246.9	250.8	254.6
38	237.7	231.2	238.1	243.4	245.0	245.8	245.8	245.9	245.1	245.7	249.2	253.1	257.0
39	241.0	233.5	240.4	245.8	247.6	248.3	248.4	248.4	247.4	248.0	251.4	255.4	259.3
40	244.3	235.8	242.7	248.3	250.1	250.9	250.9	250.9	249.7	250.3	253.7	257.7	261.6
41	247.0	238.2	245.0	250.8	252.6	253.5	253.4	253.4	252.1	252.6	256.0	259.9	263.9
42	249.0	240.3	247.3	253.3	255.2	256.1	255.9	255.9	254.4	254.8	258.2	262.2	266.3
43	251.1	242.3	249.1	255.7	257.7	258.7	258.4	258.4	256.8	257.1	260.5	264.5	268.6
44	253.2	244.4	250.8	257.1	259.2	260.1	260.0	260.0	258.5	258.9	262.5	266.8	270.9
45	255.3	246.4	252.5	258.4	260.4	261.3	261.2	261.2	259.8	260.2	263.6	267.8	272.2
46	256.9	248.4	254.2	259.8	261.6	262.4	262.4	262.4	261.0	261.4	264.7	268.7	273.0
47	257.1	249.7	255.8	261.1	262.9	263.6	263.7	263.5	262.3	262.6	265.8	269.6	273.7
48	257.4	250.5	256.8	262.5	264.1	264.7	264.9	264.7	263.5	263.9	266.8	270.5	274.5
49	257.7	251.3	257.0	262.7	264.6	265.3	265.4	265.3	264.4	264.9	267.9	271.3	275.3
50	257.9	252.1	257.3	262.5	264.3	265.0	265.1	265.0	264.1	264.6	267.8	271.7	276.0
51	258.2	252.9	257.5	262.3	264.0	264.6	264.7	264.6	263.8	264.3	267.3	271.0	275.2
52	258.5	253.6	257.7	262.1	263.7	264.3	264.4	264.3	263.5	264.0	266.8	270.3	274.3
53	258.7	254.4	257.9	261.9	263.4	264.0	264.0	264.0	263.2	263.7	266.3	269.6	273.4
54	259.0	255.2	258.2	261.7	263.1	263.6	263.7	263.6	262.9	263.4	265.8	268.9	272.5
55	259.3	256.0	258.4	261.5	262.8	263.3	263.3	263.3	262.6	263.1	265.3	268.2	271.6

TABLE XV. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -												
	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
1000.0	-.05	.10	.16	.17	.13	.10	.10	.09	.09	.12	.10	.10	.10
850.0	1.23	1.42	1.51	1.55	1.53	1.52	1.51	1.51	1.51	1.53	1.50	1.46	1.43
700.0	2.72	2.96	3.08	3.15	3.17	3.16	3.16	3.16	3.16	3.17	3.12	3.05	2.99
500.0	5.18	5.50	5.67	5.82	5.88	5.89	5.89	5.89	5.89	5.89	5.80	5.68	5.57
400.0	6.73	7.10	7.30	7.51	7.60	7.62	7.61	7.62	7.62	7.61	7.49	7.34	7.19
300.0	8.63	9.05	9.29	9.56	9.71	9.74	9.73	9.74	9.74	9.71	9.55	9.36	9.17
250.0	9.79	10.24	10.50	10.81	10.98	11.02	11.02	11.02	11.02	10.97	10.80	10.58	10.38
200.0	11.20	11.66	11.95	12.28	12.46	12.51	12.51	12.51	12.51	12.46	12.27	12.04	11.85
150.0	13.00	13.49	13.78	14.11	14.28	14.33	14.33	14.33	14.33	14.29	14.14	13.93	13.76
100.0	15.53	16.07	16.34	16.59	16.72	16.75	16.74	16.74	16.77	16.78	16.72	16.59	16.47
70.0	17.73	18.32	18.56	18.75	18.84	18.87	18.82	18.83	18.91	18.97	18.95	18.89	18.82
50.0	19.81	20.45	20.67	20.82	20.89	20.90	20.85	20.87	20.98	21.08	21.10	21.10	21.07
30.0	22.96	23.67	23.92	24.06	24.12	24.13	24.08	24.12	24.25	24.38	24.44	24.48	24.51
10.0	29.83	30.70	31.14	31.39	31.48	31.49	31.49	31.51	31.63	31.77	31.89	31.99	32.12
5.0	34.16	35.08	35.77	36.20	36.36	36.41	36.45	36.50	36.62	36.74	36.90	37.03	37.23
2.0	40.55	41.36	42.30	42.92	43.16	43.24	43.27	43.32	43.42	43.56	43.82	44.07	44.38
1.0	45.75	46.43	47.52	48.23	48.49	48.58	48.57	48.62	48.72	48.91	49.27	49.65	50.05
.4	52.90	53.43	54.61	55.42	55.70	55.80	55.81	55.83	55.87	56.07	56.48	56.93	57.43
TROP.	10.21	10.80	12.40	15.41	15.96	16.27	16.27	15.97	15.51	14.99	13.25	11.22	10.15

TABLE XVI. SEASONALLY AVERAGED EXTINCTION AND TEMPERATURE DATA FOR FALL 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	7.59	5.86	6.21	6.97	8.26	8.76	9.73	8.24	8.70	8.67	11.63	10.28	16.19	14.06	17.45
6	9.70	10.07	4.48	7.77	7.59	7.16	10.54	6.92	11.57	8.30	8.44	8.30	13.13	13.65	14.93
7	8.27	9.35	3.51	8.54	8.80	5.93	7.04	5.43	10.14	7.48	10.13	7.12	12.76	14.69	15.02
8	5.64	5.42	3.92	9.59	7.54	6.92	5.39	4.70	7.01	12.41	6.77	4.28	12.36	15.32	17.06
9	5.27	4.91	3.70	7.18	7.59	5.63	3.60	3.59	10.53	5.55	4.97	10.80	10.90	15.31	19.68
10	4.18	5.12	3.42	4.16	5.69	4.15	4.24	3.68	10.46	7.43	4.22	11.14	8.95	14.40	17.27
11	3.77	4.66	2.98	2.64	4.55	3.65	7.26	3.79	14.41	15.88	3.29	4.25	8.36	11.22	13.14
12	3.41	3.40	2.71	2.30	4.25	2.94	5.76	6.27	13.44	9.47	3.82	4.24	7.49	9.00	9.96
13	3.27	2.79	2.50	2.13	2.44	2.16	3.60	8.26	12.09	7.09	4.06	4.03	6.22	7.94	8.79
14	2.67	2.43	2.33	2.02	1.88	1.74	2.86	7.12	9.76	7.00	4.85	4.10	6.05	7.62	8.30
15	1.93	1.93	2.14	2.02	1.88	1.76	5.38	7.05	12.13	5.07	3.90	4.38	6.21	7.28	7.61
16	1.18	1.44	1.92	2.02	2.05	1.92	6.76	5.23	10.63	6.44	4.11	4.79	6.43	6.66	6.66
17	.67	1.01	1.72	1.97	2.19	2.21	6.81	5.68	7.79	6.41	5.12	5.46	6.16	5.77	5.72
18	.38	.71	1.51	1.82	2.08	2.50	4.76	5.82	6.28	5.60	5.65	5.74	5.25	4.57	4.45
19	.24	.54	1.24	1.59	1.88	2.41	4.87	5.74	5.60	5.11	5.43	5.13	4.09	3.26	2.88
20	.17	.39	.96	1.30	1.60	2.12	4.18	5.61	4.72	3.70	4.08	3.85	2.88	2.02	1.66
21	.12	.30	.72	1.00	1.21	1.50	2.91	5.03	3.30	2.55	2.82	2.74	1.76	1.14	.89
22	.09	.24	.53	.75	.89	1.06	1.63	3.15	2.23	1.98	2.06	1.95	.98	.60	.47
23	.07	.18	.38	.54	.64	.79	1.10	1.67	1.61	1.49	1.59	1.23	.57	.36	.30
24	.05	.14	.27	.37	.42	.54	.79	1.25	1.21	1.01	1.10	.63	.33	.24	.21
25	.04	.11	.19	.26	.30	.39	.60	.98	.95	.76	.65	.41	.24	.18	.16
26	.03	.08	.14	.19	.22	.27	.44	.78	.75	.58	.47	.30	.18	.13	.11
27	.03	.06	.10	.14	.16	.20	.33	.63	.60	.47	.37	.23	.13	.10	.08
28	.02	.05	.07	.10	.12	.15	.26	.49	.49	.37	.28	.18	.10	.07	.06
29	.02	.04	.06	.07	.09	.11	.21	.39	.40	.31	.21	.13	.07	.05	.04
30	.02	.03	.04	.05	.06	.08	.18	.31	.31	.23	.16	.10	.05	.04	.03
31	.01	.03	.03	.04	.05	.06	.14	.24	.23	.17	.11	.07	.04	.03	.02
32	.01	.02	.03	.03	.04	.05	.11	.19	.17	.13	.08	.05	.03	.03	.02
33	.01	.02	.02	.02	.03	.04	.08	.14	.13	.09	.06	.04	.03	.02	.02
34	.01	.02	.02	.02	.02	.03	.06	.10	.09	.06	.04	.03	.02	.02	.01
35	.01	.01	.01	.02	.02	.02	.04	.07	.06	.05	.03	.03	.02	.01	.01
36	.01	.01	.01	.01	.02	.02	.03	.05	.05	.03	.02	.02	.02	.01	.01
37	.01	.01	.01	.01	.01	.01	.02	.03	.03	.02	.02	.02	.01	.01	.01
38	.00	.01	.01	.01	.01	.01	.02	.02	.02	.02	.01	.01	.01	.01	.01
39	.00	.01	.01	.01	.01	.01	.01	.02	.02	.01	.01	.01	.01	.01	.01
40	.00	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.00
*TROP.+2	10.87	13.57	18.49	17.75	14.20	12.78	21.36	31.05	26.71	21.95	24.05	27.20	37.06	49.58	56.29

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XVI. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	2.20	1.94	2.00	2.11	2.31	2.43	2.53	2.36	2.41	2.43	2.93	2.63	3.61	3.25	3.77
6	2.73	2.81	1.81	2.39	2.36	2.29	2.90	2.26	3.13	2.51	2.52	2.49	3.33	3.39	3.65
7	2.64	2.89	1.70	2.66	2.71	2.19	2.41	2.10	3.04	2.52	3.03	2.42	3.55	3.94	3.98
8	2.28	2.24	1.90	3.17	2.66	2.55	2.21	2.06	2.58	3.79	2.51	1.85	3.77	4.45	4.82
9	2.38	2.29	1.76	2.80	2.88	2.39	1.89	1.90	3.66	2.30	2.23	3.72	3.73	4.93	6.03
10	2.25	2.54	2.02	2.19	2.60	2.16	2.21	2.04	3.84	3.10	2.18	4.09	3.55	5.21	6.04
11	2.32	2.62	2.03	1.88	2.46	2.14	3.27	2.18	5.57	6.19	2.00	2.32	3.73	4.77	5.44
12	2.40	2.37	2.09	1.89	2.53	2.04	3.04	3.26	5.70	4.32	2.36	2.49	3.80	4.52	4.95
13	2.58	2.34	2.18	1.96	2.02	1.87	2.41	4.33	5.80	3.84	2.64	2.65	3.71	4.63	5.10
14	2.51	2.37	2.29	2.06	1.92	1.81	2.23	4.20	5.35	4.13	3.23	2.95	4.08	5.07	5.51
15	2.29	2.27	2.38	2.23	2.07	1.95	3.85	4.69	7.41	3.61	3.07	3.42	4.67	5.51	5.81
16	1.93	2.11	2.44	2.44	2.37	2.21	5.13	4.14	7.42	4.96	3.56	4.11	5.42	5.79	5.89
17	1.63	1.92	2.50	2.63	2.71	2.64	5.77	5.08	6.48	5.54	4.74	5.13	5.91	5.81	5.88
18	1.43	1.75	2.54	2.77	2.89	3.18	4.98	5.92	6.25	5.72	5.86	6.08	5.88	5.42	5.40
19	1.32	1.67	2.48	2.81	3.02	3.48	5.95	6.79	6.65	6.12	6.50	6.32	5.44	4.67	4.29
20	1.27	1.58	2.33	2.72	3.02	3.59	6.07	7.80	6.68	5.43	5.94	5.70	4.65	3.63	3.20
21	1.23	1.52	2.17	2.55	2.80	3.17	5.15	8.18	5.72	4.67	5.07	4.97	3.60	2.72	2.38
22	1.20	1.48	2.00	2.36	2.56	2.82	3.78	6.33	4.81	4.40	4.53	4.35	2.71	2.06	1.85
23	1.18	1.42	1.83	2.15	2.31	2.60	3.24	4.38	4.26	4.02	4.23	3.45	2.17	1.75	1.64
24	1.16	1.39	1.69	1.93	2.03	2.30	2.90	3.98	3.90	3.43	3.61	2.49	1.79	1.60	1.52
25	1.15	1.35	1.57	1.76	1.86	2.09	2.69	3.77	3.70	3.15	2.85	2.15	1.67	1.51	1.45
26	1.15	1.31	1.50	1.65	1.74	1.91	2.45	3.59	3.49	2.93	2.57	1.98	1.60	1.44	1.37
27	1.14	1.28	1.42	1.54	1.63	1.77	2.28	3.45	3.35	2.83	2.45	1.89	1.51	1.38	1.31
28	1.13	1.26	1.36	1.46	1.53	1.67	2.18	3.24	3.24	2.72	2.27	1.80	1.44	1.33	1.27
29	1.13	1.25	1.31	1.39	1.46	1.57	2.15	3.10	3.17	2.64	2.14	1.69	1.38	1.29	1.23
30	1.13	1.23	1.27	1.34	1.40	1.50	2.14	2.97	2.93	2.48	1.98	1.59	1.34	1.26	1.20
31	1.13	1.22	1.25	1.30	1.36	1.44	2.05	2.76	2.70	2.27	1.82	1.52	1.30	1.24	1.18
32	1.13	1.20	1.24	1.27	1.33	1.40	1.91	2.61	2.49	2.08	1.69	1.46	1.27	1.22	1.16
33	1.13	1.20	1.23	1.25	1.30	1.37	1.79	2.36	2.26	1.89	1.57	1.40	1.26	1.21	1.15
34	1.12	1.19	1.22	1.23	1.28	1.34	1.70	2.16	2.05	1.73	1.48	1.36	1.25	1.21	1.15
35	1.12	1.19	1.21	1.22	1.26	1.30	1.60	1.95	1.87	1.61	1.40	1.33	1.26	1.20	1.14
36	1.12	1.18	1.20	1.21	1.25	1.27	1.50	1.77	1.71	1.50	1.35	1.31	1.26	1.20	1.14
37	1.12	1.18	1.21	1.22	1.24	1.25	1.42	1.61	1.58	1.42	1.32	1.29	1.26	1.21	1.14
38	1.11	1.17	1.21	1.22	1.24	1.23	1.37	1.49	1.47	1.35	1.29	1.28	1.26	1.22	1.14
39	1.11	1.16	1.20	1.23	1.24	1.22	1.33	1.40	1.38	1.30	1.27	1.29	1.27	1.24	1.14
40	1.11	1.17	1.21	1.24	1.25	1.22	1.29	1.34	1.33	1.26	1.24	1.29	1.29	1.25	1.14

TABLE XVI. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
10	11.94	15.18	10.15	8.72	11.69	11.27	15.15	4.18	24.91	32.47	8.37	10.09	28.96	40.75	48.21
11	11.78	13.12	9.45	7.58	10.01	9.31	13.44	8.96	22.23	23.48	8.67	10.69	24.29	35.97	43.19
12	11.63	11.63	9.25	7.09	9.53	7.99	11.82	13.40	20.71	16.39	8.77	10.97	22.73	32.57	38.75
13	11.13	10.47	8.85	6.90	8.17	6.99	9.69	14.93	18.92	11.44	9.88	11.98	22.18	30.36	35.53
14	9.30	9.05	8.37	6.96	7.49	6.55	10.38	13.80	14.58	10.61	11.52	13.63	22.50	28.93	32.78
15	7.07	7.43	7.78	7.14	7.56	6.88	12.09	13.38	16.57	11.13	12.57	15.85	23.07	26.85	29.12
16	4.92	5.78	7.09	7.23	8.01	7.69	13.26	14.60	16.78	14.29	14.76	17.92	22.89	23.57	24.41
17	3.18	4.31	6.28	7.07	8.26	8.70	14.82	17.32	18.11	16.67	17.45	19.73	21.06	19.41	19.25
18	1.95	3.12	5.39	6.54	7.96	9.32	16.28	20.47	19.99	18.13	19.27	19.83	17.56	15.00	14.29
19	1.17	2.27	4.44	5.72	7.19	9.02	16.51	22.37	20.30	17.29	18.50	17.53	13.49	10.92	10.03
20	.70	1.66	3.53	4.75	6.10	7.87	14.86	21.73	18.06	14.43	15.23	13.83	9.78	7.52	6.73
21	.43	1.24	2.73	3.79	4.89	6.25	11.71	18.62	14.19	11.12	11.40	10.21	6.75	4.92	4.30
22	.29	.93	2.04	2.95	3.77	4.69	8.35	13.74	10.43	8.37	8.28	7.24	4.44	3.07	2.63
23	.20	.71	1.48	2.23	2.80	3.43	5.69	9.28	7.51	6.14	5.94	4.89	2.83	1.89	1.59
24	.14	.55	1.07	1.63	2.03	2.48	3.94	6.36	5.41	4.43	4.19	3.18	1.77	1.18	.98
25	.10	.44	.77	1.18	1.49	1.83	2.83	4.59	4.01	3.27	2.95	2.10	1.15	.77	.64
26	.07	.34	.57	.87	1.11	1.36	2.11	3.49	3.09	2.50	2.14	1.44	.78	.53	.43
27	.05	.27	.43	.64	.83	1.02	1.61	2.76	2.46	1.96	1.60	1.03	.56	.38	.30
28	.04	.21	.32	.48	.62	.77	1.26	2.22	2.01	1.58	1.23	.77	.41	.28	.22
29	.03	.16	.24	.36	.47	.59	1.02	1.79	1.64	1.27	.94	.58	.31	.21	.16
30	.02	.12	.18	.27	.36	.45	.83	1.45	1.32	1.02	.72	.44	.24	.16	.12
31	.02	.09	.13	.20	.27	.34	.67	1.17	1.04	.80	.55	.34	.18	.12	.08
32	.01	.07	.10	.15	.20	.26	.52	.92	.81	.61	.42	.26	.13	.09	.06
33	.01	.05	.07	.11	.15	.19	.40	.71	.61	.45	.32	.19	.10	.07	.04
34	.01	.04	.05	.08	.10	.14	.29	.53	.45	.33	.23	.14	.07	.05	.03
35	.01	.03	.04	.05	.07	.10	.21	.39	.33	.24	.17	.10	.05	.04	.02
36	.01	.02	.03	.04	.05	.07	.16	.28	.24	.17	.12	.07	.04	.03	.02
37	.01	.01	.02	.03	.04	.05	.11	.20	.17	.12	.08	.05	.03	.02	.01
38	.00	.01	.02	.02	.03	.04	.08	.14	.12	.08	.06	.04	.02	.02	.01
39	.00	.01	.01	.01	.02	.03	.05	.10	.08	.06	.04	.03	.02	.01	.01
40	.00	.01	.01	.01	.02	.02	.04	.07	.06	.04	.03	.02	.01	.01	.00
*TROP.+2	40.11	52.53	67.00	64.78	56.94	51.82	84.44	127.32	106.16	85.26	90.17	99.65	132.74	181.03	213.52

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XVI. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
10	2.82	3.10	3.05	2.67	2.58	2.44	2.41	2.14	1.33	2.12	2.17	1.82	2.82	2.80	2.81
11	3.12	3.19	3.11	2.72	2.60	2.71	2.71	2.47	1.72	2.23	2.52	2.36	2.78	3.04	3.17
12	3.40	3.40	3.32	2.92	2.84	3.05	2.99	2.78	2.12	2.37	2.77	2.76	3.01	3.33	3.55
13	3.53	3.61	3.47	3.12	3.13	3.32	2.90	2.79	2.20	2.41	3.04	3.30	3.30	3.61	3.85
14	3.59	3.74	3.58	3.30	3.48	3.52	3.14	2.77	1.92	2.58	3.30	3.55	3.54	3.75	3.95
15	3.68	3.82	3.65	3.47	3.78	3.74	3.45	2.71	2.20	2.77	3.55	3.68	3.67	3.73	3.88
16	3.87	3.93	3.69	3.58	3.86	3.88	3.68	3.23	2.56	2.98	3.66	3.73	3.67	3.61	3.68
17	4.16	4.09	3.70	3.64	3.87	3.95	3.82	3.62	3.06	3.22	3.76	3.77	3.58	3.44	3.45
18	4.34	4.23	3.67	3.65	3.88	3.96	3.93	4.00	3.53	3.46	3.75	3.73	3.44	3.32	3.29
19	4.21	4.24	3.63	3.64	3.88	3.94	4.00	4.20	3.82	3.62	3.73	3.63	3.34	3.34	3.34
20	3.79	4.07	3.64	3.66	3.89	3.92	4.11	4.26	3.99	3.78	3.71	3.56	3.39	3.57	3.71
21	3.33	3.88	3.71	3.73	3.94	3.96	4.16	4.33	4.16	3.96	3.76	3.60	3.61	3.97	4.27
22	3.01	3.71	3.76	3.87	4.07	4.05	4.30	4.36	4.27	4.07	3.83	3.78	3.97	4.36	4.66
23	2.78	3.59	3.78	4.02	4.22	4.17	4.51	4.41	4.29	4.06	3.88	4.02	4.34	4.51	4.68
24	2.55	3.55	3.82	4.15	4.39	4.26	4.61	4.53	4.20	4.06	3.94	4.27	4.51	4.37	4.35
25	2.31	3.53	3.87	4.26	4.61	4.44	4.61	4.52	4.06	4.11	4.05	4.46	4.47	4.07	3.96
26	2.09	3.52	3.96	4.39	4.78	4.65	4.66	4.36	3.98	4.14	4.14	4.46	4.26	3.84	3.73
27	1.91	3.49	4.03	4.51	4.92	4.85	4.72	4.33	3.97	4.12	4.19	4.33	4.10	3.73	3.67
28	1.75	3.40	4.06	4.63	5.07	5.05	4.74	4.37	4.01	4.12	4.23	4.25	4.08	3.70	3.64
29	1.58	3.26	4.02	4.72	5.20	5.22	4.76	4.45	4.08	4.17	4.33	4.27	4.15	3.68	3.58
30	1.41	3.11	3.93	4.76	5.25	5.34	4.78	4.55	4.18	4.30	4.50	4.37	4.21	3.62	3.47
31	1.27	3.02	3.79	4.76	5.17	5.35	4.84	4.69	4.31	4.51	4.74	4.46	4.16	3.51	3.30
32	1.17	2.96	3.60	4.69	4.98	5.23	4.88	4.83	4.47	4.74	5.04	4.45	4.00	3.41	3.09
33	1.10	2.80	3.41	4.54	4.69	5.00	4.84	4.98	4.58	4.92	5.29	4.35	3.73	3.27	2.84
34	1.05	3.06	3.25	4.30	4.34	4.69	4.76	5.08	4.64	5.02	5.43	4.17	3.37	3.13	2.54
35	1.01	4.43	3.24	3.97	3.95	4.37	4.75	5.18	4.73	5.04	5.39	3.89	2.99	2.92	2.23
36	.98	6.30	3.68	3.66	3.55	4.10	4.78	5.37	4.87	5.00	5.13	3.53	2.61	2.54	1.96
37	.97	6.65	5.28	3.77	3.19	3.85	4.86	5.65	5.03	4.89	4.72	3.16	2.31	2.17	1.76
38	1.01	4.31	8.05	5.08	2.91	3.62	5.02	5.95	5.14	4.74	4.26	2.82	2.16	2.00	1.76
39	1.37	2.90	12.61	7.73	2.68	3.41	5.60	5.85	5.15	4.55	3.81	2.50	2.19	1.95	2.94
40	1.66	3.38	16.04	7.84	2.50	3.33	6.77	5.45	5.38	4.33	3.43	2.19	2.55	1.75	9.80

TABLE XVI. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
5	238.5	242.4	246.3	253.1	262.3	269.0	272.8	273.3	273.4	273.0	270.9	267.4	259.1	252.4	249.4
6	231.6	235.6	239.5	246.4	256.0	262.9	267.1	267.6	267.8	267.2	265.0	261.2	252.9	246.1	242.8
7	224.6	229.0	232.9	239.5	249.0	256.2	260.5	261.3	261.4	260.7	258.1	254.4	246.1	239.3	235.9
8	217.8	223.1	227.6	233.5	242.1	249.2	253.7	254.6	254.7	253.9	251.1	247.3	239.3	233.1	229.7
9	211.8	218.1	223.0	227.6	235.3	242.0	246.5	247.3	247.5	246.7	243.8	240.1	232.6	226.9	223.7
10	207.5	214.8	220.3	224.0	229.2	234.9	239.1	239.8	240.1	239.3	236.6	233.1	227.1	223.4	220.9
11	205.1	213.0	219.2	221.7	224.1	228.0	231.3	231.8	232.3	231.5	229.4	226.8	223.1	222.1	220.9
12	204.4	212.9	218.7	220.1	220.1	222.0	223.9	224.0	224.3	223.9	222.6	221.3	220.2	221.6	221.4
13	204.0	213.1	218.7	219.2	217.4	216.8	216.9	216.9	216.9	216.8	216.4	217.1	218.7	221.5	222.1
14	204.2	213.6	218.6	218.3	215.0	212.1	210.4	210.2	209.8	210.2	210.8	213.3	217.4	221.3	222.3
15	204.3	214.2	218.5	217.5	213.8	209.5	206.5	206.3	205.6	206.1	207.6	211.3	216.7	221.0	222.2
16	205.7	215.2	218.4	216.7	212.5	207.4	203.5	203.5	202.6	203.0	205.0	209.6	216.0	220.7	222.1
17	207.3	216.5	218.6	216.7	212.0	206.1	201.7	201.7	200.7	201.0	203.3	208.7	215.7	220.3	221.7
18	209.2	217.9	218.8	216.9	212.1	206.4	202.5	202.1	201.3	201.3	203.6	209.1	215.6	219.9	221.2
19	211.2	219.4	219.2	217.2	212.6	207.2	203.8	203.2	202.6	202.5	204.6	209.9	215.7	219.6	220.8
20	213.8	220.9	219.6	217.7	214.0	209.8	207.3	206.8	206.4	206.3	208.0	211.9	216.1	219.3	220.4
21	216.9	223.1	220.4	218.3	215.4	212.3	210.7	210.3	210.1	210.0	211.3	213.9	216.6	219.2	220.0
22	219.9	225.3	221.3	219.3	217.2	214.7	213.3	212.9	212.8	212.9	213.8	215.6	217.4	219.3	219.9
23	223.2	227.4	222.1	220.2	219.0	217.0	215.9	215.6	215.6	215.7	216.3	217.3	218.2	219.4	219.7
24	226.9	229.8	223.2	221.2	220.8	219.4	218.5	218.2	218.3	218.6	218.8	219.0	219.0	219.6	219.6
25	230.6	232.2	224.6	222.5	222.6	221.4	220.6	220.4	220.5	220.7	220.7	220.5	220.3	220.5	220.5
26	234.2	234.7	225.9	223.9	224.3	223.4	222.7	222.6	222.6	222.8	222.6	222.0	221.6	221.5	221.3
27	237.9	237.1	227.3	225.2	226.1	225.3	224.8	224.8	224.8	224.8	224.5	223.6	222.9	222.4	222.2
28	241.6	239.5	228.6	226.5	227.8	227.3	226.9	227.0	226.9	226.9	226.4	225.1	224.2	223.4	223.1
29	245.2	242.0	230.0	227.8	229.5	229.3	229.0	229.2	229.0	229.0	228.3	226.6	225.5	224.4	223.9
30	248.9	244.4	231.3	229.1	231.3	231.3	231.1	231.4	231.1	231.1	230.2	228.1	226.8	225.3	224.8

TABLE XVI. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
31	251.9	246.8	232.7	230.4	233.0	233.2	233.2	233.6	233.3	233.2	232.1	229.6	228.1	226.3	225.6
32	254.9	249.2	235.0	232.3	234.9	235.2	235.4	235.9	235.6	235.3	233.9	231.2	229.7	227.8	227.2
33	257.9	251.6	237.2	234.4	236.8	237.2	237.7	238.4	238.0	237.4	235.8	232.9	231.4	229.4	228.8
34	260.9	254.0	239.4	236.4	238.7	239.2	239.9	240.8	240.5	239.6	237.7	234.6	233.1	231.1	230.5
35	263.9	256.4	241.6	238.4	240.6	241.1	242.2	243.2	243.0	241.7	239.6	236.3	234.9	232.7	232.1
36	265.7	258.8	243.9	240.5	242.5	243.1	244.4	245.6	245.4	243.8	241.6	237.9	236.6	234.4	233.8
37	267.1	260.4	246.1	242.8	244.6	245.2	246.6	247.7	247.5	245.8	243.6	240.1	238.7	236.3	235.6
38	268.5	261.9	248.4	245.1	246.9	247.4	248.6	249.7	249.5	247.8	245.7	242.4	240.9	238.2	237.5
39	269.9	263.5	250.6	247.4	249.1	249.5	250.7	251.7	251.4	249.8	247.8	244.7	243.1	240.1	239.4
40	271.2	265.0	252.8	249.7	251.3	251.7	252.7	253.7	253.4	251.7	249.9	247.0	245.3	242.1	241.2
41	272.6	266.6	255.1	252.0	253.5	253.9	254.8	255.7	255.3	253.7	252.0	249.4	247.5	244.0	243.1
42	274.0	268.1	257.3	254.4	255.7	256.0	256.8	257.6	257.3	255.7	254.0	251.7	249.6	245.9	244.9
43	274.8	269.7	259.0	256.3	257.9	258.2	258.9	259.6	259.3	257.6	256.1	254.0	251.6	247.7	246.7
44	274.5	270.0	259.9	257.6	259.1	259.3	259.8	260.4	260.0	258.4	257.1	255.4	253.2	249.4	248.5
45	274.2	270.0	260.8	258.8	260.1	260.1	260.4	260.8	260.4	258.9	258.1	256.8	254.7	251.1	250.3
46	273.9	270.0	261.8	260.1	261.1	260.9	261.0	261.1	260.8	259.5	259.0	258.3	256.2	252.8	252.0
47	273.6	270.0	262.7	261.3	262.1	261.7	261.6	261.5	261.3	260.1	259.9	259.7	257.8	254.5	253.8
48	273.3	270.0	263.6	262.5	263.1	262.5	262.1	261.9	261.7	260.7	260.8	261.1	259.2	255.7	254.8
49	273.4	270.0	263.5	262.5	263.4	262.9	262.5	262.2	261.9	260.9	261.0	261.4	259.3	256.0	255.2
50	273.6	269.7	263.5	262.3	263.1	262.6	262.3	262.2	262.0	260.8	260.9	261.3	259.3	256.3	255.5
51	273.9	269.5	263.4	262.2	262.8	262.4	262.2	262.2	262.1	260.7	260.7	261.2	259.4	256.6	255.9
52	274.1	269.2	263.3	262.0	262.5	262.1	262.1	262.3	262.2	260.7	260.5	261.1	259.4	256.9	256.2
53	274.4	269.0	263.2	261.9	262.2	261.9	262.0	262.3	262.3	260.6	260.3	261.0	259.5	257.2	256.6
54	274.6	268.7	263.1	261.7	261.8	261.6	261.8	262.3	262.3	260.5	260.1	261.0	259.6	257.5	256.9
55	274.9	268.4	263.1	261.5	261.5	261.4	261.7	262.4	262.4	260.4	259.9	260.9	259.6	257.8	257.3

TABLE XVI. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -														
	-75.	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.	65.
1000.0	-.05	-.05	-.02	.08	.15	.14	.11	.10	.09	.10	.13	.14	.13	.09	.09
850.0	1.21	1.21	1.27	1.40	1.51	1.53	1.52	1.51	1.50	1.52	1.53	1.53	1.48	1.41	1.39
700.0	2.66	2.69	2.78	2.94	3.10	3.15	3.16	3.15	3.15	3.16	3.17	3.14	3.04	2.94	2.90
500.0	5.08	5.15	5.27	5.49	5.73	5.85	5.89	5.89	5.89	5.89	5.88	5.81	5.64	5.47	5.41
400.0	6.60	6.69	6.84	7.09	7.38	7.54	7.61	7.61	7.61	7.61	7.58	7.50	7.28	7.07	6.99
300.0	8.46	8.58	8.76	9.05	9.41	9.62	9.72	9.73	9.73	9.72	9.67	9.56	9.28	9.03	8.92
250.0	9.59	9.74	9.94	10.26	10.63	10.87	10.99	11.00	11.01	10.99	10.93	10.80	10.50	10.23	10.11
200.0	10.93	11.14	11.38	11.71	12.09	12.34	12.47	12.49	12.49	12.48	12.40	12.26	11.95	11.68	11.55
150.0	12.66	12.93	13.23	13.56	13.93	14.16	14.28	14.30	14.30	14.29	14.21	14.09	13.80	13.55	13.43
100.0	15.08	15.47	15.83	16.16	16.46	16.63	16.69	16.71	16.70	16.69	16.65	16.59	16.38	16.19	16.08
70.0	17.26	17.74	18.09	18.42	18.67	18.78	18.80	18.80	18.78	18.77	18.76	18.75	18.62	18.48	18.39
50.0	19.34	19.90	20.26	20.57	20.79	20.86	20.86	20.85	20.82	20.80	20.81	20.85	20.75	20.64	20.56
30.0	22.58	23.25	23.58	23.87	24.07	24.11	24.10	24.08	24.05	24.03	24.05	24.11	24.03	23.94	23.87
10.0	30.08	30.86	30.91	31.17	31.43	31.47	31.44	31.42	31.39	31.37	31.40	31.42	31.29	31.16	31.07
5.0	35.31	36.00	35.71	35.96	36.30	36.35	36.33	36.30	36.29	36.27	36.29	36.27	36.06	35.90	35.78
2.0	42.67	43.20	42.52	42.70	43.12	43.20	43.23	43.23	43.21	43.12	43.07	42.96	42.68	42.42	42.26
1.0	48.35	48.79	47.94	48.08	48.52	48.59	48.62	48.63	48.60	48.47	48.39	48.24	47.96	47.64	47.47
.4	55.70	56.10	55.15	55.24	55.69	55.76	55.78	55.79	55.73	55.58	55.51	55.36	55.01	54.58	54.39
TROP.	10.57	10.24	9.97	10.89	13.49	15.33	15.82	15.80	15.91	16.01	15.72	14.72	12.28	10.36	9.74

TABLE XVII. SEASONALLY AVERAGED EXTINCTION AND TEMPERATURE DATA FOR WINTER 1980

(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$

Altitude, km	$\beta_{a,1.00}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
5	6.57	5.08	6.68	5.63	7.99	15.66	13.63	13.07	9.36	7.26	7.23	12.11	11.09
6	8.57	5.43	6.43	5.55	3.98	10.22	9.98	7.03	6.09	9.46	8.87	10.70	12.64
7	6.02	6.64	6.06	5.26	6.16	7.64	6.63	6.39	5.36	6.34	10.36	10.81	13.25
8	4.59	9.06	5.62	5.52	11.19	7.47	5.60	9.50	5.28	5.03	8.66	10.98	10.24
9	3.88	7.04	4.78	5.44	15.10	13.83	4.50	9.22	4.40	6.40	7.35	10.49	10.28
10	2.89	3.99	3.94	3.86	8.63	8.84	6.43	8.59	4.30	10.13	6.87	9.91	10.97
11	2.48	2.90	5.14	3.33	7.97	5.04	5.04	12.28	4.73	6.95	6.14	8.22	9.67
12	2.44	2.44	2.76	3.97	5.35	8.90	4.98	10.43	4.40	4.04	4.75	6.83	7.42
13	2.48	2.32	2.20	3.25	3.65	6.10	5.56	5.14	8.13	3.36	4.24	5.84	5.93
14	2.48	2.39	2.05	2.34	2.22	4.93	4.03	3.33	11.85	2.85	4.10	5.34	4.90
15	2.31	2.42	2.11	2.31	2.73	5.26	4.11	3.81	4.89	2.42	4.14	4.99	4.14
16	1.99	2.33	2.26	2.10	3.62	4.15	5.25	4.59	2.47	2.59	4.32	4.57	3.49
17	1.56	2.05	2.35	2.13	1.90	2.79	7.20	5.72	2.71	3.26	4.40	3.93	2.78
18	1.17	1.60	2.22	2.30	2.20	2.82	7.01	5.66	2.92	4.04	4.00	3.03	2.08
19	.87	1.17	1.77	2.24	2.62	3.80	5.92	5.73	3.68	4.10	3.05	2.13	1.50
20	.62	.86	1.27	1.84	2.73	5.19	7.57	7.39	4.32	3.06	2.03	1.41	1.05
21	.44	.63	.87	1.33	2.40	5.78	8.56	7.41	3.57	1.87	1.29	.94	.76
22	.32	.47	.62	.89	1.64	3.70	6.05	5.00	2.11	1.14	.83	.66	.59
23	.25	.33	.46	.63	1.00	1.80	2.99	2.62	1.28	.79	.59	.48	.44
24	.18	.24	.34	.45	.69	1.03	1.47	1.51	.88	.60	.45	.38	.34
25	.13	.18	.24	.34	.50	.72	1.00	1.05	.68	.47	.35	.30	.25
26	.10	.14	.19	.25	.36	.54	.77	.81	.52	.37	.28	.23	.19
27	.08	.10	.14	.19	.28	.42	.63	.65	.44	.29	.22	.17	.14
28	.06	.08	.10	.14	.23	.33	.49	.55	.39	.22	.16	.13	.10
29	.05	.06	.08	.10	.17	.26	.37	.44	.34	.16	.12	.09	.07
30	.03	.05	.06	.08	.12	.19	.29	.35	.28	.12	.08	.07	.05
31	.03	.03	.04	.06	.09	.15	.22	.27	.22	.09	.06	.05	.04
32	.02	.03	.04	.04	.07	.11	.18	.20	.16	.06	.04	.04	.03
33	.02	.02	.03	.03	.05	.08	.13	.15	.12	.05	.03	.03	.02
34	.01	.02	.02	.02	.04	.06	.10	.10	.08	.03	.02	.02	.02
35	.01	.02	.02	.02	.03	.05	.07	.07	.06	.02	.02	.02	.02
36	.01	.01	.01	.02	.02	.04	.05	.05	.04	.02	.01	.01	.01
37	.01	.01	.01	.01	.02	.03	.04	.03	.03	.01	.01	.01	.01
38	.01	.01	.01	.01	.02	.02	.03	.02	.02	.01	.01	.01	.01
39	.01	.01	.01	.01	.01	.02	.02	.02	.02	.01	.01	.01	.01
40	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
* TROP.+2	19.80	19.70	16.00	11.74	14.06	25.10	38.37	35.07	18.84	16.18	26.84	34.80	35.60

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XVII. Continued

(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$

Altitude, km	$\beta_{a,1.00}/\beta_{m,1.00}$ at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
5	2.07	1.79	2.07	1.91	2.32	3.62	3.29	3.14	2.54	2.17	2.13	2.92	2.67
6	2.56	1.98	2.18	2.01	1.65	2.86	2.81	2.27	2.10	2.73	2.60	2.90	3.23
7	2.21	2.35	2.23	2.05	2.26	2.55	2.34	2.30	2.09	2.27	3.07	3.14	3.62
8	2.06	3.07	2.27	2.23	3.52	2.64	2.26	3.16	2.19	2.13	2.92	3.45	3.28
9	2.03	2.80	2.20	2.34	4.71	4.51	2.13	3.32	2.10	2.60	2.85	3.66	3.65
10	1.88	2.16	2.12	2.08	3.42	3.45	2.84	3.42	2.20	3.86	2.98	3.85	4.25
11	1.89	1.99	2.64	2.05	3.49	2.59	2.57	4.90	2.49	3.17	2.99	3.74	4.30
12	2.02	1.97	2.02	2.43	2.88	4.18	2.76	4.65	2.55	2.45	2.79	3.63	3.96
13	2.21	2.09	1.95	2.31	2.46	3.43	3.23	3.03	4.26	2.37	2.86	3.62	3.78
14	2.41	2.30	2.04	2.09	1.97	3.22	2.81	2.50	6.31	2.34	3.10	3.79	3.69
15	2.53	2.53	2.24	2.25	2.47	3.78	3.15	2.99	3.48	2.33	3.46	4.03	3.65
16	2.53	2.71	2.55	2.33	3.14	3.51	4.18	3.77	2.50	2.67	3.98	4.23	3.60
17	2.39	2.74	2.87	2.59	2.36	2.97	6.05	5.04	2.94	3.46	4.54	4.23	3.42
18	2.20	2.58	3.06	3.02	2.88	3.39	6.85	5.73	3.48	4.57	4.74	3.90	3.11
19	2.04	2.34	2.92	3.32	3.66	4.85	6.96	6.80	4.76	5.25	4.33	3.39	2.77
20	1.86	2.14	2.62	3.26	4.31	7.33	10.26	10.03	6.28	4.76	3.61	2.86	2.45
21	1.70	1.99	2.30	2.93	4.46	9.35	13.40	11.72	6.17	3.75	2.96	2.45	2.24
22	1.60	1.85	2.09	2.54	3.79	7.30	11.30	9.54	4.63	2.99	2.50	2.20	2.11
23	1.53	1.71	1.96	2.29	3.03	4.64	7.03	6.31	3.64	2.66	2.26	2.04	1.98
24	1.46	1.61	1.82	2.09	2.66	3.50	4.55	4.66	3.15	2.48	2.12	1.95	1.87
25	1.39	1.53	1.70	1.97	2.43	3.08	3.87	4.02	2.97	2.35	2.03	1.87	1.77
26	1.34	1.46	1.63	1.84	2.20	2.83	3.60	3.76	2.78	2.27	1.96	1.79	1.68
27	1.30	1.40	1.53	1.76	2.10	2.68	3.49	3.59	2.75	2.15	1.88	1.69	1.58
28	1.27	1.35	1.46	1.63	2.06	2.55	3.30	3.57	2.85	2.02	1.75	1.59	1.49
29	1.24	1.31	1.40	1.54	1.92	2.42	3.04	3.43	2.90	1.89	1.65	1.50	1.41
30	1.21	1.28	1.36	1.47	1.78	2.24	2.84	3.23	2.82	1.78	1.54	1.43	1.35
31	1.19	1.25	1.32	1.41	1.67	2.11	2.68	3.03	2.63	1.66	1.46	1.37	1.30
32	1.17	1.23	1.29	1.36	1.58	1.95	2.55	2.80	2.40	1.56	1.39	1.33	1.27
33	1.16	1.22	1.27	1.31	1.50	1.84	2.35	2.50	2.20	1.47	1.34	1.29	1.25
34	1.15	1.22	1.25	1.28	1.43	1.74	2.14	2.23	2.01	1.40	1.30	1.27	1.23
35	1.14	1.21	1.22	1.26	1.38	1.65	1.96	1.99	1.84	1.34	1.26	1.25	1.22
36	1.14	1.22	1.21	1.24	1.35	1.57	1.80	1.79	1.70	1.29	1.23	1.24	1.22
37	1.14	1.23	1.20	1.23	1.33	1.50	1.66	1.64	1.59	1.27	1.22	1.23	1.21
38	1.14	1.24	1.19	1.22	1.32	1.43	1.55	1.51	1.49	1.25	1.21	1.23	1.21
39	1.14	1.24	1.18	1.20	1.31	1.39	1.47	1.42	1.42	1.23	1.21	1.23	1.23
40	1.13	1.24	1.19	1.19	1.30	1.35	1.42	1.36	1.36	1.21	1.21	1.23	1.23

TABLE XVII. Continued

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$

Altitude, km	$\beta_{a,0.45}$, 10^{-4} km^{-1}, at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
10	5.94	8.11	12.34	8.23	19.23	9.97	15.67	25.66	10.33	15.73	17.56	25.55	35.47
11	6.84	7.75	10.17	8.40	15.74	11.79	13.05	19.95	11.86	13.28	16.24	22.43	30.65
12	7.75	7.68	8.63	8.54	11.15	14.14	9.69	14.08	12.68	10.62	15.39	20.77	26.63
13	8.52	8.07	8.05	7.99	8.81	10.35	10.14	10.31	13.75	9.42	15.59	19.27	22.83
14	8.76	8.51	8.02	7.47	7.40	8.67	8.16	7.72	13.68	8.97	15.65	18.19	19.53
15	8.24	8.67	8.40	7.43	7.18	8.29	9.23	7.96	11.44	9.32	15.97	17.01	16.62
16	7.13	8.23	8.77	7.87	7.35	7.98	10.29	9.21	10.26	10.56	16.23	15.38	13.87
17	5.80	7.17	8.71	8.48	7.76	8.43	14.37	12.37	10.65	12.37	15.74	13.13	11.15
18	4.51	5.83	7.94	8.70	8.79	10.68	17.36	16.72	12.42	13.65	13.99	10.44	8.58
19	3.44	4.54	6.59	8.13	9.65	14.15	21.35	21.74	14.53	13.22	11.23	7.78	6.33
20	2.59	3.45	5.11	6.92	9.58	16.80	24.90	25.17	15.10	10.99	8.28	5.54	4.55
21	1.94	2.60	3.80	5.42	8.41	16.49	24.82	24.35	13.06	8.12	5.79	3.86	3.26
22	1.46	1.94	2.78	3.99	6.54	13.08	20.33	19.48	9.75	5.65	3.95	2.68	2.33
23	1.10	1.42	2.04	2.87	4.69	8.97	14.11	13.54	6.82	3.91	2.71	1.89	1.67
24	.83	1.05	1.50	2.07	3.29	5.97	9.17	8.90	4.77	2.78	1.93	1.37	1.20
25	.64	.79	1.12	1.53	2.35	4.03	6.07	5.98	3.44	2.06	1.42	1.02	.87
26	.50	.61	.85	1.15	1.72	2.85	4.24	4.24	2.61	1.58	1.09	.77	.63
27	.39	.47	.65	.87	1.31	2.11	3.11	3.19	2.10	1.23	.84	.58	.45
28	.30	.37	.50	.66	1.02	1.61	2.33	2.50	1.76	.96	.65	.44	.32
29	.23	.29	.38	.51	.80	1.24	1.77	1.99	1.49	.74	.50	.33	.23
30	.17	.22	.29	.39	.62	.97	1.36	1.59	1.23	.57	.39	.25	.16
31	.12	.16	.22	.30	.47	.75	1.05	1.26	.99	.44	.29	.18	.12
32	.09	.12	.16	.22	.36	.57	.80	.97	.78	.34	.22	.14	.08
33	.06	.09	.12	.16	.27	.43	.61	.73	.60	.25	.16	.10	.06
34	.05	.06	.09	.12	.20	.32	.45	.54	.44	.18	.12	.07	.05
35	.03	.05	.06	.08	.15	.24	.33	.38	.32	.13	.08	.05	.03
36	.02	.03	.05	.06	.10	.17	.24	.27	.23	.09	.06	.04	.02
37	.02	.03	.03	.04	.07	.12	.17	.19	.16	.06	.04	.03	.02
38	.01	.02	.03	.03	.05	.08	.12	.13	.11	.04	.03	.02	.01
39	.01	.02	.02	.02	.04	.06	.08	.09	.08	.03	.02	.01	.01
40	.01	.01	.01	.02	.03	.04	.06	.06	.05	.02	.01	.01	.01
*TROP.+2	70.38	71.20	62.92	47.04	55.47	93.85	140.64	138.68	78.80	62.42	102.77	120.00	138.36

*This row of data gives the optical depth in units of 10^{-4} at 2 km above the tropopause at the indicated latitudes.

TABLE XVII. Continued

(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$

Altitude, km	$\beta_{a,0.45}/\beta_{a,1.00}$ at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
10	2.06	2.27	2.57	2.28	1.87	2.39	5.11	2.43	2.04	2.02	2.60	2.81	3.19
11	2.58	2.56	2.71	2.57	2.60	2.37	3.65	2.42	2.66	2.49	2.86	2.83	3.35
12	3.10	2.92	2.89	2.81	2.90	2.56	2.29	2.28	3.09	2.82	3.14	2.98	3.54
13	3.45	3.29	3.23	3.01	3.15	2.16	1.81	2.34	3.30	3.14	3.46	3.15	3.68
14	3.63	3.52	3.66	3.27	3.19	2.05	1.87	2.29	3.56	3.51	3.71	3.33	3.85
15	3.67	3.64	3.90	3.60	3.53	2.18	2.14	2.45	3.68	3.73	3.85	3.44	3.95
16	3.66	3.65	3.92	3.85	3.77	2.36	2.39	2.56	3.91	3.84	3.86	3.48	3.99
17	3.67	3.62	3.86	3.94	3.82	2.92	2.75	2.95	4.12	3.83	3.81	3.49	4.02
18	3.73	3.63	3.79	3.94	3.89	3.43	3.10	3.38	4.19	3.72	3.75	3.52	4.05
19	3.83	3.72	3.78	3.89	3.90	3.59	3.31	3.65	4.08	3.64	3.75	3.58	4.06
20	3.98	3.83	3.88	3.87	3.79	3.47	3.38	3.75	4.00	3.69	3.88	3.68	4.03
21	4.16	3.93	4.05	3.98	3.78	3.39	3.36	3.78	3.98	3.94	4.08	3.77	3.95
22	4.30	4.01	4.18	4.12	3.89	3.47	3.45	3.92	4.18	4.28	4.21	3.76	3.80
23	4.38	4.05	4.23	4.23	4.12	3.87	3.85	4.33	4.58	4.46	4.19	3.65	3.61
24	4.44	4.10	4.22	4.29	4.36	4.60	4.59	4.81	4.85	4.42	4.06	3.49	3.43
25	4.60	4.19	4.29	4.33	4.50	5.02	5.21	5.04	4.85	4.29	3.91	3.35	3.29
26	4.80	4.31	4.39	4.38	4.49	4.98	5.20	4.91	4.77	4.19	3.82	3.28	3.18
27	4.94	4.45	4.51	4.45	4.49	4.83	4.92	4.69	4.71	4.20	3.81	3.28	3.09
28	4.99	4.59	4.69	4.60	4.51	4.74	4.69	4.53	4.62	4.31	3.90	3.34	3.02
29	4.90	4.70	4.82	4.80	4.59	4.72	4.60	4.46	4.52	4.46	4.08	3.42	2.96
30	4.71	4.74	4.82	4.99	4.77	4.83	4.60	4.49	4.48	4.66	4.29	3.49	2.90
31	4.47	4.71	4.70	5.13	4.99	4.96	4.57	4.57	4.54	4.89	4.50	3.53	2.85
32	4.19	4.60	4.51	5.14	5.18	5.03	4.52	4.69	4.73	5.13	4.69	3.55	2.79
33	3.84	4.17	4.35	5.06	5.32	5.07	4.54	4.84	4.90	5.30	4.84	3.50	2.72
34	3.42	3.53	4.30	4.99	5.32	5.02	4.57	5.00	5.01	5.35	4.81	3.38	2.62
35	2.98	2.99	4.51	5.20	5.17	4.86	4.58	5.13	5.06	5.20	4.53	3.20	2.47
36	2.58	2.64	5.18	5.97	4.83	4.67	4.60	5.26	5.06	4.82	4.14	3.05	2.31
37	2.25	2.63	6.35	5.70	4.34	4.48	4.67	5.34	5.01	4.29	3.94	3.02	2.17
38	1.99	3.27	7.37	4.78	3.77	4.26	4.85	5.25	4.81	3.74	3.56	3.23	1.99
39	1.80	5.47	7.32	5.06	3.30	4.01	5.33	4.97	4.48	3.25	3.73	3.68	1.77
40	1.68	14.26	5.89	7.23	3.20	3.77	6.11	4.54	4.08	2.95	3.79	4.27	1.68

TABLE XVII. Continued

(e) Temperature

Altitude, km	Temperature, K, at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
5	245.7	251.9	260.8	268.0	271.5	273.0	272.9	272.5	270.5	266.2	257.1	250.6	244.0
6	239.2	245.3	254.5	261.6	265.4	267.2	267.2	267.0	264.6	260.3	250.8	244.0	237.5
7	232.9	238.4	247.5	254.7	259.1	260.8	260.9	260.9	258.2	253.6	243.9	237.0	230.9
8	228.4	233.2	240.6	247.7	252.5	253.9	254.1	254.2	251.3	246.8	237.2	230.7	225.0
9	225.2	228.2	233.8	240.6	245.5	246.5	246.7	246.7	243.9	239.8	230.6	224.4	219.8
10	224.8	225.7	228.0	233.6	238.4	239.0	239.1	239.1	236.5	232.9	225.0	220.1	216.9
11	225.7	224.7	223.9	227.1	230.9	231.1	231.0	231.0	229.2	226.3	220.9	218.0	216.8
12	226.7	224.3	221.0	221.4	223.8	223.8	223.4	223.6	222.5	220.5	217.9	216.9	217.2
13	227.8	224.6	219.7	216.7	217.1	216.6	216.3	216.5	216.0	215.5	216.2	216.8	218.0
14	228.6	224.7	218.4	212.3	210.7	209.6	209.5	209.7	209.7	210.9	214.7	216.6	218.2
15	229.2	224.7	217.5	209.9	206.4	204.9	204.5	204.4	205.3	208.0	213.5	216.4	218.3
16	229.9	224.7	216.6	207.7	202.8	201.1	200.2	199.7	201.5	205.2	212.3	216.2	218.4
17	230.5	225.0	216.4	206.7	200.6	198.6	197.5	196.7	198.9	203.3	211.6	216.0	218.4
18	231.0	225.3	217.0	207.4	201.3	198.9	198.0	197.4	198.3	202.5	211.1	215.8	218.3
19	231.6	225.8	217.8	208.5	202.6	200.0	199.3	198.9	199.2	203.2	211.5	215.9	218.3
20	232.1	226.5	219.2	211.0	205.9	203.7	203.0	202.6	203.1	206.5	212.7	216.1	218.3
21	232.7	227.4	220.7	213.5	209.3	207.2	206.5	206.2	206.8	209.5	214.1	216.5	218.4
22	233.7	228.8	222.6	216.1	212.3	210.3	209.5	209.2	209.7	212.2	215.6	217.0	218.6
23	234.6	230.2	224.6	218.8	215.3	213.3	212.5	212.3	212.6	214.8	217.1	217.5	218.7
24	235.6	231.7	226.5	221.4	218.3	216.4	215.4	215.2	215.4	217.3	218.6	218.1	219.1
25	237.1	233.4	228.4	223.6	220.4	218.4	217.3	217.0	217.1	218.9	220.0	219.0	220.0
26	238.8	235.2	230.4	225.7	222.5	220.4	219.2	218.8	218.9	220.6	221.4	219.9	220.8
27	240.4	237.0	232.3	227.7	224.7	222.4	221.1	220.6	220.6	222.3	222.8	220.8	221.7
28	242.1	238.8	234.3	229.8	226.8	224.5	223.0	222.4	222.4	223.9	224.2	221.7	222.5
29	243.8	240.6	236.2	231.9	228.9	226.5	225.0	224.2	224.2	225.6	225.6	222.6	223.4
30	245.5	242.4	238.1	234.0	231.0	228.5	226.9	225.9	225.9	227.3	227.0	223.5	224.2

TABLE XVII. Continued

(e) Concluded

Altitude, km	Temperature, K, at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
31	247.2	244.3	240.1	236.1	233.2	230.6	228.8	227.7	227.7	228.9	228.4	224.6	225.3
32	248.9	246.1	242.1	238.3	235.5	233.0	231.3	230.3	230.2	231.3	230.6	226.8	226.9
33	251.3	248.4	244.4	240.7	238.0	235.5	233.9	232.9	232.7	233.7	232.8	229.0	228.5
34	253.7	250.7	246.6	243.1	240.5	238.0	236.5	235.5	235.3	236.2	235.1	231.2	230.1
35	256.1	253.0	248.9	245.5	242.9	240.5	239.1	238.1	237.9	238.7	237.4	233.4	231.7
36	258.5	255.3	251.2	247.9	245.4	243.0	241.7	240.7	240.4	241.1	239.6	235.5	233.3
37	260.8	257.6	253.4	250.0	247.4	245.1	243.9	243.0	242.8	243.2	241.5	237.4	234.8
38	263.0	259.5	255.3	251.9	249.3	247.1	246.1	245.4	245.1	245.3	243.5	239.4	236.4
39	265.1	261.4	257.2	253.8	251.2	249.1	248.3	247.7	247.5	247.3	245.5	241.3	238.0
40	267.2	263.3	259.1	255.7	253.0	251.2	250.5	250.0	249.9	249.4	247.5	243.3	239.6
41	269.3	265.2	261.0	257.6	254.9	253.2	252.7	252.4	252.2	251.5	249.4	245.3	241.2
42	271.4	267.1	262.9	259.5	256.8	255.2	255.0	254.7	254.6	253.6	251.4	247.2	242.7
43	273.5	269.0	264.7	261.4	258.7	257.1	256.7	256.5	256.3	255.2	252.8	248.3	243.8
44	275.6	270.9	266.4	262.4	259.2	257.6	257.4	257.3	257.3	256.0	253.6	249.4	244.9
45	276.7	271.5	266.7	262.8	259.6	258.1	258.1	258.2	258.3	256.8	254.4	250.5	246.0
46	277.1	271.8	267.1	263.1	259.9	258.6	258.7	259.0	259.2	257.5	255.2	251.6	247.1
47	277.6	272.1	267.4	263.4	260.3	259.2	259.4	259.9	260.2	258.3	256.0	252.7	248.2
48	278.0	272.3	267.7	263.8	260.7	259.7	260.1	260.7	261.0	259.0	256.7	253.6	249.8
49	278.4	272.6	268.0	264.1	260.7	259.6	259.7	260.1	260.3	258.8	257.1	254.5	251.3
50	278.8	272.7	267.8	263.7	260.5	259.3	259.2	259.5	259.6	258.7	257.5	255.4	252.9
51	278.2	272.1	267.3	263.3	260.3	259.0	258.8	258.9	258.9	258.5	257.9	256.2	254.4
52	277.4	271.4	266.8	263.0	260.0	258.8	258.3	258.3	258.2	258.3	258.3	257.1	256.0
53	276.6	270.7	266.3	262.6	259.8	258.5	257.9	257.6	257.5	258.1	258.7	258.0	257.5
54	275.8	270.0	265.8	262.2	259.6	258.2	257.4	257.0	256.8	257.9	259.1	258.9	259.1
55	274.9	269.4	265.3	261.9	259.3	257.9	256.9	256.4	256.1	257.7	259.5	259.7	260.6

TABLE XVII. Concluded

(f) Geopotential height of standard pressure surfaces

Pressure, mbar	Altitude, km, at latitude, deg, of -												
	-65.	-55.	-45.	-35.	-25.	-15.	-5.	5.	15.	25.	35.	45.	55.
1000.0	-.06	-.00	.11	.15	.12	.10	.10	.10	.13	.15	.14	.13	.14
850.0	1.22	1.30	1.46	1.54	1.52	1.51	1.51	1.51	1.53	1.52	1.48	1.43	1.41
700.0	2.71	2.83	3.03	3.15	3.16	3.15	3.15	3.14	3.16	3.12	3.04	2.95	2.89
500.0	5.19	5.36	5.64	5.83	5.87	5.88	5.88	5.87	5.86	5.79	5.62	5.48	5.35
400.0	6.76	6.96	7.29	7.52	7.58	7.60	7.60	7.59	7.57	7.47	7.25	7.06	6.90
300.0	8.68	8.92	9.30	9.58	9.68	9.71	9.72	9.71	9.66	9.53	9.24	9.00	8.80
250.0	9.88	10.14	10.52	10.82	10.95	10.98	10.98	10.97	10.92	10.77	10.44	10.19	9.97
200.0	11.36	11.60	11.98	12.29	12.43	12.46	12.47	12.46	12.39	12.24	11.89	11.61	11.38
150.0	13.28	13.50	13.84	14.12	14.25	14.28	14.28	14.27	14.21	14.05	13.72	13.45	13.22
100.0	16.00	16.18	16.43	16.60	16.68	16.68	16.69	16.68	16.62	16.51	16.26	16.03	15.83
70.0	18.43	18.54	18.70	18.76	18.77	18.75	18.75	18.72	18.69	18.63	18.47	18.30	18.12
50.0	20.72	20.78	20.86	20.85	20.80	20.76	20.75	20.71	20.69	20.66	20.56	20.44	20.28
30.0	24.22	24.22	24.22	24.12	24.02	23.96	23.93	23.89	23.88	23.87	23.82	23.71	23.58
10.0	31.97	31.90	31.77	31.54	31.35	31.21	31.15	31.12	31.08	31.13	31.06	30.87	30.75
5.0	37.14	37.01	36.80	36.49	36.24	36.03	35.93	35.86	35.81	35.91	35.82	35.52	35.38
2.0	44.43	44.20	43.86	43.46	43.13	42.86	42.73	42.63	42.56	42.65	42.49	42.06	41.82
1.0	50.20	49.85	49.42	48.93	48.53	48.23	48.09	47.99	47.92	47.98	47.76	47.22	46.87
.4	57.76	57.24	56.69	56.10	55.64	55.33	55.21	55.14	55.07	55.07	54.79	54.16	53.69
TROP.	8.67	9.68	12.17	15.19	16.08	16.24	16.31	16.40	16.61	15.84	12.44	10.54	9.63

TABLE XVIII. AVERAGE OPTICAL DEPTH IN 10° LATITUDE AND 20° LONGITUDE BINS

(a) Sweep 10, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	21.0	23.7	20.0	19.9	22.8	20.8	*****	15.8	18.8	*****	19.0	19.8	*****	27.4	19.2	20.8	26.5	21.9
25	*****	25.3	16.0	20.4	19.1	21.6	*****	21.6	18.0	18.6	17.1	19.6	*****	19.4	20.4	21.1	19.9	28.4
15	*****	19.3	*****	12.9	14.4	23.7	*****	23.2	14.2	13.7	10.1	8.3	*****	10.7	12.9	11.6	11.2	16.9
5	*****	11.8	13.2	13.3	12.4	11.5	*****	11.4	15.0	14.9	13.5	13.4	*****	11.6	10.8	11.9	10.7	9.9
-5	*****	*****	*****	*****	11.1	18.8	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	62.1	88.6	58.0	61.8	87.6	68.1	*****	45.9	65.8	*****	68.4	64.4	*****	96.2	60.5	75.5	112.6	85.2
25	*****	115.9	64.6	74.3	84.5	101.4	*****	96.8	64.9	68.7	63.0	72.8	*****	91.9	89.5	94.9	*****	134.9
15	*****	89.6	*****	61.0	39.3	174.1	*****	146.6	68.8	61.3	33.2	30.7	*****	39.1	53.5	43.9	50.3	68.9
5	*****	48.3	66.7	62.7	49.5	41.7	*****	54.3	79.5	61.4	56.2	61.4	*****	53.3	45.9	50.0	43.4	42.2
-5	*****	*****	*****	*****	33.4	92.4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(b) Sweep 11, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	26.2	21.0	26.0	26.9	24.8	26.6	24.8	22.3	21.7	23.9	25.2	24.2	20.4	21.0	22.0	20.6	22.7	21.9
35	24.8	24.3	22.7	19.6	25.2	29.2	23.5	23.7	23.0	22.9	25.7	22.3	19.1	19.9	24.6	24.8	26.8	26.8
25	*****	24.9	21.8	24.3	26.5	21.8	17.7	20.2	22.9	21.0	29.2	*****	*****	23.1	26.4	25.7	28.7	29.4
15	13.3	14.2	19.5	17.7	*****	12.5	12.8	14.0	22.0	17.1	30.9	15.2	14.4	16.4	18.1	13.8	*****	12.9
5	13.8	13.9	*****	12.6	13.2	12.5	11.2	15.0	13.0	18.8	14.9	14.6	15.6	11.0	12.5	*****	13.5	14.2
-5	16.3	18.6	21.2	18.4	19.5	18.1	20.0	*****	20.4	17.1	19.7	16.9	18.0	13.2	17.7	18.4	17.7	15.0
-15	*****	17.0	21.1	20.2	34.1	20.4	21.0	21.6	19.3	19.3	18.8	20.1	15.1	17.6	18.0	17.6	21.3	19.4
-25	13.6	16.7	14.0	15.0	17.7	17.3	18.3	14.9	13.9	12.0	13.2	11.4	12.0	12.5	17.3	12.3	20.7	12.4
-35	14.6	11.6	*****	11.4	13.4	11.5	13.0	14.0	11.4	11.3	11.0	11.3	10.9	12.6	12.6	9.3	11.9	11.2
-45	15.5	16.2	13.7	12.7	12.6	12.1	14.7	12.7	16.5	14.1	14.1	12.7	14.6	14.4	14.9	13.4	9.7	12.9
-55	13.6	14.9	17.2	14.5	11.5	16.9	19.9	11.2	14.7	17.2	21.3	17.4	13.5	16.1	20.5	15.5	15.4	21.9
-65	15.7	18.4	18.8	17.9	18.6	19.3	17.8	17.3	18.6	20.6	20.2	15.1	17.9	21.3	18.3	18.4	21.5	18.8
-75	17.2	19.1	16.8	16.9	18.5	17.8	17.4	18.2	18.9	19.7	20.8	18.5	18.6	17.8	19.2	18.2	17.8	17.7
	At 0.45 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	89.6	123.6	*****	100.2	*****	*****	95.6	111.8	*****	108.6	115.5	91.4	85.0	*****	86.6	78.1	77.0
35	124.0	102.2	101.6	86.1	*****	*****	98.5	112.7	91.4	119.9	*****	103.0	78.3	80.2	119.2	122.2	*****	120.3
25	*****	118.8	105.2	110.9	141.4	89.8	77.6	85.0	112.4	107.0	156.3	*****	*****	110.2	143.4	131.9	185.4	*****
15	67.0	68.0	99.2	103.5	*****	56.6	52.2	63.4	125.9	81.7	166.5	76.5	55.3	84.2	96.7	67.5	*****	59.0
5	69.8	67.8	*****	60.0	62.8	55.3	53.4	69.6	61.2	107.1	77.8	71.4	83.3	53.0	58.3	*****	62.3	69.9
-5	68.4	90.5	116.7	91.8	115.3	103.5	115.0	*****	104.3	94.2	78.0	62.7	102.6	46.9	67.4	64.2	83.4	58.3
-15	*****	74.3	112.3	105.4	128.9	117.0	110.9	124.4	109.2	89.6	95.6	97.3	67.0	85.8	88.0	70.3	114.3	100.7
-25	53.0	77.5	67.7	69.2	82.8	90.2	95.9	63.3	67.1	35.0	46.1	55.5	58.1	61.1	84.9	52.4	93.1	34.9
-35	62.8	32.4	*****	49.9	52.6	57.7	55.1	73.2	48.9	51.4	45.5	55.3	48.2	63.8	58.5	38.9	52.0	61.5
-45	92.8	74.1	66.6	54.8	54.8	47.5	66.8	64.5	63.4	65.7	61.4	56.9	68.0	72.5	62.9	61.4	43.5	51.3
-55	55.6	67.7	76.6	65.2	50.4	66.7	98.0	46.4	60.1	70.7	102.2	103.1	59.3	67.0	92.3	60.7	64.4	95.7
-65	62.3	81.6	79.1	74.0	77.7	77.0	69.8	80.8	80.6	91.8	87.0	68.2	76.7	91.2	70.9	77.5	89.3	77.7
-75	67.3	*****	69.8	*****	*****	69.4	66.0	73.8	74.6	77.1	*****	*****	66.0	*****	*****	68.7	68.8	69.0

TABLE XVIII. Continued

(c) Sweep 12, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	20.2	19.6	25.4	26.0	26.5	26.3	25.3	21.2	24.6	25.3	25.0	23.3	22.2	20.0	23.3	25.1	25.6	23.2
35	19.7	16.9	19.7	19.7	22.6	22.7	24.8	22.9	22.7	27.0	26.4	25.7	24.2	24.3	25.7	25.6	25.6	27.3
25	15.5	17.1	17.2	17.8	*****	14.8	16.7	21.1	22.4	14.5	23.3	22.5	18.3	22.5	18.5	14.9	26.3	18.9
15	10.6	11.5	14.9	12.4	12.3	11.6	14.1	15.2	16.2	14.6	14.8	*****	14.1	11.8	10.4	10.0	10.1	*****
5	*****	11.3	15.0	14.2	10.9	18.0	14.7	16.2	13.9	15.8	11.9	*****	12.8	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	18.4	*****	*****	*****	*****	*****	16.8	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	74.2	*****	*****	*****	*****	102.7	77.2	96.2	*****	99.8	91.2	89.6	81.1	89.8	*****	*****	84.0
35	75.4	62.9	73.7	77.5	93.7	92.4	109.9	93.9	95.8	*****	114.8	111.0	104.9	105.9	111.9	92.2	*****	*****
25	64.7	73.9	61.3	74.9	*****	60.8	71.9	93.4	95.1	61.5	126.9	97.9	75.6	94.5	81.1	62.2	112.4	82.6
15	44.2	45.1	59.4	49.0	51.3	40.6	55.3	67.9	66.9	59.9	55.1	*****	53.9	50.5	41.7	35.2	39.4	*****
5	*****	44.3	70.7	63.1	44.3	94.3	68.0	83.9	62.3	56.7	53.6	*****	60.3	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	72.1	*****	*****	*****	*****	*****	81.0	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(d) Sweep 13, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	23.4	23.9	21.2	22.2	21.0	21.8	23.2	23.7	23.8	25.4	*****	25.0	27.2	27.3	22.8	26.1	25.6	23.7
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	15.0	16.2	15.1	*****
-5	*****	14.9	17.3	*****	25.9	17.8	*****	14.9	17.7	14.5	26.2	17.5	*****	*****	*****	*****	*****	19.2
-15	*****	15.6	*****	16.3	18.9	16.7	*****	15.8	16.3	18.1	16.6	*****	*****	*****	19.1	15.2	15.4	15.8
-25	*****	18.1	*****	13.5	14.8	13.0	*****	*****	18.1	*****	13.6	14.4	*****	16.9	13.6	15.3	15.4	13.1
-35	*****	14.8	9.0	11.4	13.9	10.1	*****	11.2	17.6	11.3	12.1	13.2	*****	11.3	*****	12.6	12.9	14.4
-45	14.1	18.6	13.5	11.8	15.4	11.0	*****	11.3	14.1	11.0	13.5	10.9	12.9	11.9	13.5	15.4	13.9	13.8
-55	14.0	15.5	17.6	15.2	16.5	16.5	15.7	18.8	18.3	16.6	13.4	17.7	11.8	11.3	16.3	15.0	13.7	10.8
-65	19.2	16.5	16.2	17.3	16.3	15.3	19.0	17.2	17.2	17.5	20.0	17.8	16.3	16.3	16.6	17.9	16.0	13.6
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	92.2	84.3	91.2	81.9	95.0	97.5	95.4	*****	*****	*****	*****	*****	*****	92.6	104.0	109.3	105.6
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	43.4	40.8	44.8	*****
-5	*****	66.3	69.1	*****	102.9	67.2	*****	58.4	77.9	54.6	88.0	79.9	*****	*****	*****	*****	*****	74.6
-15	*****	58.5	*****	69.7	70.4	64.9	*****	73.1	75.5	82.5	82.7	*****	*****	*****	79.5	67.8	58.9	82.5
-25	*****	71.4	*****	61.3	64.0	58.3	*****	*****	85.0	*****	60.2	57.6	*****	81.0	56.5	65.3	44.9	50.3
-35	*****	54.2	25.5	42.4	52.5	38.1	*****	42.9	80.7	42.0	48.6	46.4	*****	45.0	*****	49.7	53.2	60.2
-45	55.1	84.1	47.4	43.2	58.7	37.4	*****	41.8	48.1	29.9	43.5	35.3	45.9	45.4	59.8	61.3	54.9	56.2
-55	49.2	47.4	66.9	50.6	58.6	48.8	57.6	78.5	73.4	70.6	43.0	53.7	43.4	37.4	53.8	50.4	47.2	26.1
-65	61.2	*****	51.2	51.7	52.1	45.8	59.3	50.7	55.1	52.0	*****	*****	*****	*****	47.7	56.7	48.6	40.4
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(e) Sweep 14, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	22.7	23.5	*****	22.8	22.4	23.7	22.6	20.5	23.9	32.8	27.2	27.3	25.5	24.4	24.4	24.6	26.9	24.2
55	23.4	21.7	23.1	22.3	25.3	27.1	25.1	22.6	19.7	18.1	26.3	22.6	29.4	31.4	27.6	26.3	24.0	24.9
45	23.6	23.9	135.6	31.8	17.9	22.4	21.3	16.4	21.3	19.5	26.9	23.0	22.0	23.2	22.9	30.7	21.1	18.7
35	15.3	16.6	118.4	71.2	21.0	21.8	15.4	16.8	19.2	35.0	21.7	15.3	15.6	17.7	21.1	16.5	13.8	15.3
25	14.2	14.7	17.6	14.6	17.1	25.6	36.4	12.6	20.6	13.5	13.7	19.6	8.0	12.5	15.6	9.2	7.7	10.8
15	12.5	14.1	12.5	12.5	21.3	34.8	14.5	12.3	13.2	10.9	8.5	7.8	*****	10.1	8.9	8.6	11.2	12.5
5	12.6	12.2	13.3	15.2	16.6	15.3	15.0	12.6	13.6	12.6	13.2	12.5	13.2	12.8	14.1	14.5	11.9	12.7
−5	14.8	14.2	15.8	14.4	17.8	14.2	14.2	13.4	14.2	12.5	13.7	15.0	14.4	15.2	14.5	14.3	16.0	13.9
−15	*****	16.4	15.4	14.6	14.3	16.0	15.7	15.5	14.9	14.7	15.9	15.9	14.5	15.3	16.7	18.4	15.5	15.3
−25	14.9	14.6	11.7	13.6	12.6	14.5	15.1	12.1	13.6	11.9	11.5	11.5	14.1	13.4	12.6	14.3	13.8	12.9
−35	11.0	12.2	11.7	13.6	13.3	12.9	14.8	14.2	12.3	11.2	13.1	10.8	12.4	9.9	10.8	12.0	11.9	10.7
−45	20.9	17.2	14.8	12.9	17.1	15.5	13.6	11.3	14.2	15.6	18.0	19.7	22.7	19.7	17.6	17.6	18.7	17.4
−55	18.1	20.5	20.2	20.1	19.4	18.7	18.9	17.2	18.6	17.9	18.3	19.6	20.7	18.5	19.6	18.9	18.4	19.6
−65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
−75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	100.3	88.5	82.8	120.2	*****	*****	*****	*****	*****	103.6	111.8	*****	104.1
55	*****	*****	*****	*****	*****	*****	*****	*****	79.3	76.1	144.5	*****	*****	*****	*****	*****	*****	*****
45	107.1	*****	390.4	101.6	71.5	87.0	89.9	68.0	102.9	80.4	112.1	*****	90.7	104.1	*****	*****	78.6	78.8
35	63.3	71.6	448.8	267.0	53.4	98.9	67.7	81.1	90.1	110.4	97.4	68.8	68.8	72.8	102.0	52.8	56.5	60.2
25	38.9	59.2	72.4	57.4	50.3	97.3	77.7	41.6	98.2	58.5	43.0	80.2	34.0	52.0	78.7	35.0	29.0	45.1
15	51.9	50.6	51.8	49.8	84.1	73.8	44.3	37.3	48.2	45.9	36.5	33.4	*****	40.4	33.6	34.4	31.5	49.4
5	64.5	49.9	55.9	68.5	58.1	47.2	79.4	53.4	19.2	43.1	49.7	53.1	42.2	29.0	34.6	70.2	36.9	71.9
−5	51.1	47.3	69.5	55.3	86.5	13.5	57.3	52.5	54.6	18.5	62.9	71.9	46.5	54.1	54.0	40.4	47.1	56.2
−15	*****	64.2	75.3	62.8	61.8	65.4	73.9	70.8	66.8	62.6	67.4	70.0	46.5	55.3	80.6	84.2	59.4	46.8
−25	67.8	65.5	45.8	60.1	54.0	64.6	69.5	48.3	58.0	48.3	46.5	51.1	59.7	59.8	50.9	69.5	71.3	57.0
−35	43.5	50.7	48.2	54.3	54.9	54.7	62.3	60.7	49.6	44.7	50.5	42.1	50.5	40.0	44.6	50.6	49.2	43.0
−45	82.4	68.5	53.5	44.6	66.2	63.2	48.5	40.2	52.0	61.9	77.5	78.7	106.0	80.4	70.1	79.2	77.7	62.2
−55	64.2	75.5	74.4	75.8	70.8	67.4	62.7	53.2	61.4	65.3	61.7	73.4	*****	63.8	67.8	68.9	62.4	67.2
−65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
−75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(f) Sweep 15, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	49.5	55.7	51.6	44.0	*****	33.2	75.0	88.0	*****	63.2	65.3	52.3	*****	40.8	66.3	65.5	75.7
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	13.8	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	12.9	13.1	*****	*****	13.4	15.7	11.9	11.8	*****	*****	12.7	*****	11.0	9.9	*****	11.2	13.1	12.8
-35	*****	12.1	*****	13.8	16.5	12.8	14.4	13.1	10.1	*****	10.2	10.2	9.9	10.7	13.2	*****	*****	*****
-45	17.2	17.5	15.9	*****	16.9	19.7	15.6	14.3	14.4	*****	14.9	15.2	12.4	13.8	17.3	*****	22.0	19.3
-55	20.4	21.4	19.4	17.8	18.3	23.1	18.2	16.1	17.3	21.5	21.0	18.2	16.7	19.6	21.0	20.8	20.6	19.5
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	156.9	173.4	164.4	137.1	*****	107.1	246.1	293.8	*****	210.8	218.9	186.4	*****	123.9	199.2	201.6	214.9
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	71.4	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	56.0	58.8	*****	*****	57.1	76.0	48.5	28.2	*****	*****	51.2	*****	40.1	41.7	*****	52.7	65.5	52.2
-35	*****	43.6	*****	66.7	72.2	58.8	60.7	54.3	41.8	*****	38.9	36.6	36.6	40.0	50.6	*****	*****	*****
-45	65.4	78.9	61.9	*****	74.6	76.0	64.9	52.8	59.1	*****	60.0	62.4	52.3	56.9	68.7	*****	93.0	92.9
-55	75.9	96.3	74.3	53.2	65.7	*****	62.1	58.1	68.7	85.1	*****	61.4	60.3	76.6	87.5	72.1	76.8	71.9
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(g) Sweep 16, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	64.4	79.8	71.3	79.6	71.8	59.1	51.8	62.3	74.8	81.8	83.6	71.0	66.5	54.6	53.0	41.3	75.3	67.0
45	46.1	58.9	52.9	59.3	78.4	70.7	46.7	71.6	50.3	61.1	73.2	57.3	57.0	60.2	50.8	40.4	55.8	49.8
35	33.9	43.2	47.7	37.0	48.5	43.0	32.4	34.3	51.0	42.3	46.5	35.7	27.4	41.6	42.5	29.3	35.5	31.3
25	21.4	37.2	29.0	29.9	23.3	34.3	33.4	29.3	36.2	28.1	25.4	25.5	20.5	17.6	41.6	41.9	29.8	*****
15	22.2	27.3	26.9	16.8	22.8	34.7	*****	31.0	26.0	35.4	36.1	16.5	21.1	16.3	18.9	22.9	18.9	29.5
5	19.5	21.6	*****	25.5	28.6	30.6	26.8	*****	*****	31.2	27.3	33.1	25.8	24.2	*****	22.6	19.2	22.1
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	17.7	16.7	*****	*****	*****	*****	*****	*****	*****	*****	14.7	*****	13.1	14.1	13.8	16.6	19.1
-25	12.6	14.4	12.5	12.2	11.7	13.4	12.0	17.6	17.0	15.1	14.7	11.9	11.4	*****	10.1	*****	12.2	14.3
-35	11.1	*****	*****	11.3	11.1	10.6	12.5	12.3	15.1	12.1	12.9	11.2	11.2	10.4	*****	10.9	10.6	10.3
-45	17.2	14.9	15.8	19.3	15.0	19.1	16.0	17.2	17.0	16.0	15.3	17.8	12.2	13.6	18.3	17.8	17.4	14.7
-55	19.2	21.5	21.7	17.4	18.9	21.5	19.6	22.0	21.9	17.2	20.4	28.0	21.6	19.8	21.9	22.9	20.1	20.5
-65	21.2	21.3	24.6	24.5	21.7	20.8	21.0	22.1	21.4	22.6	20.7	19.8	19.9	20.9	22.2	22.1	23.1	23.2
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 μm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	199.2	243.7	*****	274.4	*****	197.9	174.3	*****	247.5	233.0	255.7	219.0	229.9	193.6	173.2	128.4	257.0	216.6
45	158.3	181.6	191.6	212.7	267.1	237.8	155.2	245.7	159.1	222.5	214.5	201.3	208.2	212.0	177.5	134.7	193.5	155.7
35	107.3	137.6	153.9	130.0	165.2	142.7	99.6	111.7	186.2	155.6	156.5	127.8	99.0	149.6	150.5	90.0	122.6	85.3
25	66.7	140.6	108.0	98.6	82.2	100.7	117.8	115.6	128.9	99.0	97.5	91.6	74.8	55.2	102.5	114.9	74.5	*****
15	85.5	116.0	111.4	51.9	68.7	125.6	*****	118.6	101.3	114.3	115.2	51.6	51.1	45.7	56.9	81.0	62.1	119.3
5	85.5	83.5	*****	94.0	115.8	120.1	102.3	*****	*****	104.0	89.7	104.4	83.0	80.6	*****	77.2	61.4	79.2
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	75.2	66.1	*****	*****	*****	*****	*****	*****	*****	*****	55.8	*****	45.2	43.8	53.9	64.5	64.2
-25	48.7	54.2	49.3	47.5	46.5	46.9	46.3	69.8	65.7	58.9	56.4	47.3	42.9	*****	37.9	*****	55.5	55.7
-35	40.5	*****	*****	39.7	40.3	38.5	45.8	44.3	57.5	41.9	45.9	44.1	41.3	34.2	*****	41.7	40.6	39.1
-45	63.4	50.8	56.6	63.1	54.4	70.4	55.3	60.5	66.6	64.4	51.7	62.6	42.3	47.3	63.1	72.3	55.2	48.9
-55	64.2	75.9	72.5	54.8	59.3	73.2	59.6	80.5	73.0	56.6	73.7	101.8	76.8	65.9	72.6	89.6	79.7	72.2
-65	76.8	76.7	95.2	91.5	79.9	72.5	66.2	80.1	80.9	86.8	75.7	70.7	68.9	73.5	83.5	74.7	*****	85.2
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(h) Sweep 17, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	55.8	55.7	58.0	70.8	84.0	71.8	64.8	51.7	50.9	53.8	48.5	67.8	51.1	65.4	56.0	68.3	67.1	67.0
45	65.1	51.7	50.2	71.4	69.5	40.5	49.5	60.3	59.6	43.0	65.8	64.9	64.1	58.5	57.8	72.6	63.4	63.1
35	25.2	31.7	47.0	42.0	41.2	41.3	53.7	42.2	50.8	37.5	*****	63.9	50.1	62.7	94.8	*****	60.4	61.4
25	30.1	*****	37.4	*****	36.2	31.4	33.5	39.3	40.8	*****	*****	30.9	41.2	23.3	*****	24.3	26.5	30.1
15	27.1	32.2	*****	27.8	35.9	27.3	27.6	30.9	*****	40.9	26.7	32.0	27.8	25.6	*****	22.5	15.8	*****
5	*****	*****	*****	*****	23.0	25.2	24.7	24.7	*****	25.7	*****	22.4	17.2	18.5	*****	21.7	*****	*****
-5	22.3	*****	21.0	20.4	20.1	23.9	22.9	*****	21.7	23.4	22.0	*****	22.0	*****	22.0	*****	21.2	20.2
-15	18.7	*****	21.2	*****	19.5	20.8	17.7	*****	19.0	*****	*****	20.9	21.8	*****	*****	21.9	22.6	20.8
-25	*****	12.2	12.4	15.6	13.6	13.6	*****	14.5	14.5	14.4	15.0	11.7	*****	13.9	11.8	12.6	11.9	19.0
-35	*****	10.0	10.9	12.9	12.7	13.3	*****	12.5	12.4	12.2	11.6	12.0	*****	10.9	9.8	9.4	11.0	10.9
-45	14.0	11.9	13.5	14.9	15.7	*****	16.2	14.5	13.9	13.1	15.4	*****	14.1	15.8	12.1	10.0	14.0	*****
-55	19.8	18.1	20.4	22.2	22.0	18.5	19.8	24.1	18.9	18.3	17.5	*****	17.5	20.3	22.9	18.1	18.7	23.2
-65	21.8	21.4	23.2	21.2	22.2	20.8	22.1	19.2	18.4	19.8	25.3	23.7	22.6	22.3	23.3	22.3	21.2	21.5
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	206.3	234.5	232.2	288.1	*****	*****	257.5	*****	*****	213.8	181.7	262.3	187.2	277.5	228.9	263.7	258.5	263.0
45	265.6	185.9	196.6	*****	271.9	163.0	180.6	235.1	233.6	147.5	230.6	251.5	241.1	204.1	226.2	272.7	246.5	219.0
35	96.3	101.1	172.5	159.5	159.2	147.7	191.4	140.8	203.4	134.6	*****	244.0	187.8	225.6	*****	*****	248.4	231.2
25	106.4	*****	156.2	*****	84.6	113.9	125.7	140.8	138.5	*****	*****	84.2	132.8	81.7	*****	83.3	90.5	101.6
15	87.5	118.6	*****	108.5	153.5	69.5	112.0	78.9	*****	170.6	107.4	110.0	86.1	82.1	*****	65.3	70.8	*****
5	*****	*****	*****	*****	52.8	90.4	117.7	111.1	*****	66.8	*****	92.5	55.1	84.8	*****	84.8	*****	*****
-5	107.3	*****	88.6	85.3	70.8	85.5	82.8	*****	76.1	106.8	74.6	*****	85.5	*****	84.9	*****	85.1	87.1
-15	57.1	*****	65.5	*****	91.1	62.7	75.3	*****	83.0	*****	*****	92.9	107.6	*****	*****	117.6	93.4	113.2
-25	*****	47.7	47.1	55.5	53.4	59.5	*****	55.8	65.5	75.7	74.7	46.9	*****	58.9	41.6	60.9	48.1	109.0
-35	*****	38.0	42.9	50.9	50.3	52.6	*****	47.5	52.7	46.7	45.8	44.3	*****	42.5	34.6	34.6	40.6	39.7
-45	50.9	35.1	48.2	55.7	58.5	*****	61.7	54.5	51.6	47.3	56.9	*****	54.9	61.4	43.7	32.1	48.6	*****
-55	58.7	60.3	74.5	82.2	84.3	64.3	60.0	88.7	64.6	56.2	54.6	*****	60.6	*****	*****	59.7	65.6	81.3
-65	73.8	73.5	83.2	73.0	71.4	74.6	84.3	66.8	67.3	70.7	*****	86.5	*****	*****	*****	75.6	71.5	74.8
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(i) Sweep 18, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	67.5	59.1	57.7	61.4	69.2	74.9	79.3	64.3	57.2	49.1	48.7	48.6	63.2	69.3	57.5	53.6	64.4	65.8
45	68.7	66.8	41.7	37.4	44.8	53.7	56.9	49.7	46.8	54.5	45.9	52.3	50.0	59.2	62.9	68.9	61.9	57.8
35	28.9	41.6	55.0	32.5	25.9	31.9	28.8	31.8	27.0	59.2	35.7	51.3	49.4	56.3	62.1	44.4	44.7	34.6
25	25.6	38.8	*****	39.4	31.9	31.7	30.1	34.8	*****	36.3	30.0	31.3	33.3	48.8	*****	23.9	20.4	22.3
15	51.1	32.3	28.2	*****	26.0	33.4	29.5	32.9	27.2	*****	26.5	29.8	29.1	26.2	25.0	*****	25.3	38.8
5	*****	*****	*****	*****	*****	*****	*****	*****	22.7	*****	33.6	22.5	25.7	23.5	*****	*****	*****	*****
-5	111.9	46.1	*****	*****	23.3	25.4	25.8	23.0	*****	*****	22.9	25.1	24.0	23.9	24.8	*****	25.3	30.3
-15	44.2	61.7	30.7	*****	24.7	*****	*****	*****	*****	*****	28.4	18.6	18.2	18.1	22.1	*****	*****	28.4
-25	*****	*****	*****	*****	*****	15.9	*****	21.0	18.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	256.7	211.3	199.9	242.9	255.6	*****	*****	247.5	207.3	167.5	181.1	174.9	233.4	*****	207.7	193.6	236.3	277.1
45	*****	*****	143.4	129.9	151.0	197.4	203.5	178.8	161.6	*****	158.1	187.5	180.7	219.3	248.9	*****	226.0	*****
35	91.9	141.8	204.3	109.8	88.4	110.2	104.1	106.5	73.2	*****	123.3	190.1	194.3	212.2	230.7	173.8	165.9	126.4
25	92.2	164.5	*****	155.7	120.7	123.7	117.5	132.3	*****	133.3	120.6	119.9	127.2	188.2	*****	91.4	70.2	74.0
15	189.9	123.2	103.8	*****	97.2	115.5	111.3	134.8	103.4	*****	119.3	133.0	131.6	108.0	103.1	*****	88.5	139.7
5	*****	*****	*****	*****	*****	*****	*****	*****	87.8	*****	107.8	83.1	92.7	77.6	*****	*****	*****	*****
-5	214.3	209.1	*****	*****	118.6	93.6	109.1	105.7	*****	*****	93.1	100.2	103.5	87.4	105.9	*****	114.3	122.5
-15	206.4	273.7	109.9	*****	116.7	*****	*****	*****	*****	*****	117.4	106.3	74.8	77.7	106.9	*****	*****	119.8
-25	*****	*****	*****	*****	*****	74.4	*****	98.0	113.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE XVIII. Continued

(j) Sweep 19, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	59.0	41.5	31.1	38.1	32.9	47.4	44.2	27.2	32.4	33.5	41.6	40.6	37.1	41.6	58.4	60.0	58.0	48.9
25	35.9	25.1	21.8	22.4	29.5	28.7	26.2	27.5	33.1	45.9	37.0	36.3	34.7	33.0	41.0	39.3	30.6	29.5
15	16.2	18.0	18.1	*****	26.0	22.9	23.0	25.8	31.3	30.8	22.8	18.5	18.4	20.0	20.7	17.1	13.2	16.1
5	22.6	*****	26.0	25.9	28.3	21.8	27.8	*****	26.3	22.8	23.9	23.2	23.8	23.8	19.5	17.1	24.5	20.7
-5	37.2	22.5	26.3	24.2	24.3	29.6	26.5	26.3	30.7	34.8	38.6	35.4	48.8	52.8	51.7	48.4	26.1	20.9
-15	53.4	51.1	36.9	29.6	50.8	55.0	32.2	28.5	43.6	64.6	25.8	40.6	40.6	50.1	39.6	*****	*****	46.3
-25	57.8	31.5	*****	25.7	58.7	25.6	14.7	19.8	16.1	15.2	16.8	17.6	20.1	20.8	27.2	30.1	33.5	56.1
-35	29.1	15.2	18.2	15.5	26.2	14.5	13.7	14.2	14.4	15.0	11.8	13.7	*****	12.7	12.8	13.3	12.5	12.2
-45	17.4	14.8	13.8	15.4	22.9	16.0	19.0	19.4	17.8	18.1	15.9	16.6	12.9	12.6	12.7	14.9	13.6	14.9
-55	18.6	17.2	15.0	13.6	13.2	17.8	20.4	17.4	17.7	18.5	21.7	22.8	17.7	18.4	19.6	20.9	16.0	18.5
-65	22.5	21.3	17.6	15.8	12.6	16.0	12.8	16.1	17.9	18.4	19.9	20.1	20.4	20.6	21.4	21.4	19.4	21.0
-75	16.3	16.7	14.4	13.3	11.4	11.6	13.0	13.2	14.6	15.1	15.3	15.2	13.8	12.8	15.8	18.7	18.3	18.8
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	*****	146.4	93.6	125.9	108.0	*****	158.9	91.8	105.5	107.4	142.2	136.8	133.4	134.7	*****	*****	208.5	*****
25	144.0	85.3	76.0	80.6	113.7	102.6	90.7	97.8	117.5	164.2	131.7	137.1	141.2	132.4	168.8	141.9	110.1	110.0
15	57.5	63.7	63.6	*****	76.7	81.8	82.3	89.6	102.5	131.2	85.8	75.0	73.6	74.2	76.5	61.5	47.5	57.8
5	85.0	*****	96.1	82.2	117.4	92.5	116.1	*****	101.3	89.6	97.4	104.2	104.3	89.8	65.5	46.9	80.1	76.6
-5	157.8	72.6	98.2	104.0	105.2	119.6	92.5	105.3	125.8	149.7	157.9	167.9	229.5	233.1	185.3	189.4	77.7	63.8
-15	244.5	150.7	177.5	154.1	221.2	144.2	96.7	122.0	199.9	230.3	89.3	172.7	176.8	184.5	139.2	*****	*****	169.3
-25	171.6	156.4	*****	118.1	227.8	95.7	51.2	94.5	61.8	74.6	58.9	85.0	79.1	108.1	142.3	88.1	149.3	167.5
-35	125.3	69.6	59.9	60.9	124.0	59.6	51.1	57.7	53.4	70.9	30.8	62.2	*****	54.2	62.6	60.9	53.8	56.1
-45	75.0	55.2	49.3	64.0	92.0	67.9	84.8	90.1	76.8	84.1	66.3	73.3	54.9	51.7	59.0	65.4	60.8	62.3
-55	70.1	68.4	56.5	49.4	49.1	72.2	86.1	76.1	78.6	74.5	84.9	95.2	76.8	*****	*****	84.7	61.1	68.4
-65	84.9	80.6	61.5	54.6	44.4	60.7	45.0	63.5	74.3	63.9	*****	77.1	76.9	76.6	*****	*****	74.8	75.9
-75	*****	64.1	47.0	49.9	40.4	46.7	52.4	53.8	59.9	55.0	59.7	56.2	56.4	52.4	60.8	*****	*****	*****

TABLE XVIII. Concluded

(k) Sweep 20, sunset

Latitude, deg	Optical depth, 10^{-4}, at longitude, deg, of -																	
	-170	-150	-130	-110	-90	-70	-50	-30	-10	10	30	50	70	90	110	130	150	170
	At 1.00 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	52.4	35.8	32.1	24.3	35.7	*****	24.7	28.9	25.7	44.6	30.1	*****	37.5	42.2	42.9	54.9	47.6	47.1
25	24.8	31.9	25.3	29.4	34.0	18.4	24.2	28.5	21.2	28.7	39.6	28.2	33.8	26.0	34.8	25.0	54.5	14.3
15	15.0	14.6	19.1	25.6	*****	16.2	17.9	19.9	21.8	*****	23.7	23.3	20.5	14.7	12.5	15.2	*****	13.9
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	At 0.45 µm																	
75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
35	186.3	113.4	109.5	78.1	121.9	*****	86.7	93.4	85.5	158.9	87.2	*****	115.8	140.4	145.7	*****	163.0	165.6
25	87.9	115.6	84.6	97.9	113.1	64.4	84.9	98.8	73.5	93.6	151.6	99.1	115.0	85.1	114.0	79.7	*****	49.1
15	42.8	52.2	60.8	95.5	*****	62.8	63.2	71.9	70.5	*****	81.9	99.3	78.9	49.5	45.2	55.1	*****	36.8
5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-15	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-35	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-45	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-55	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-65	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

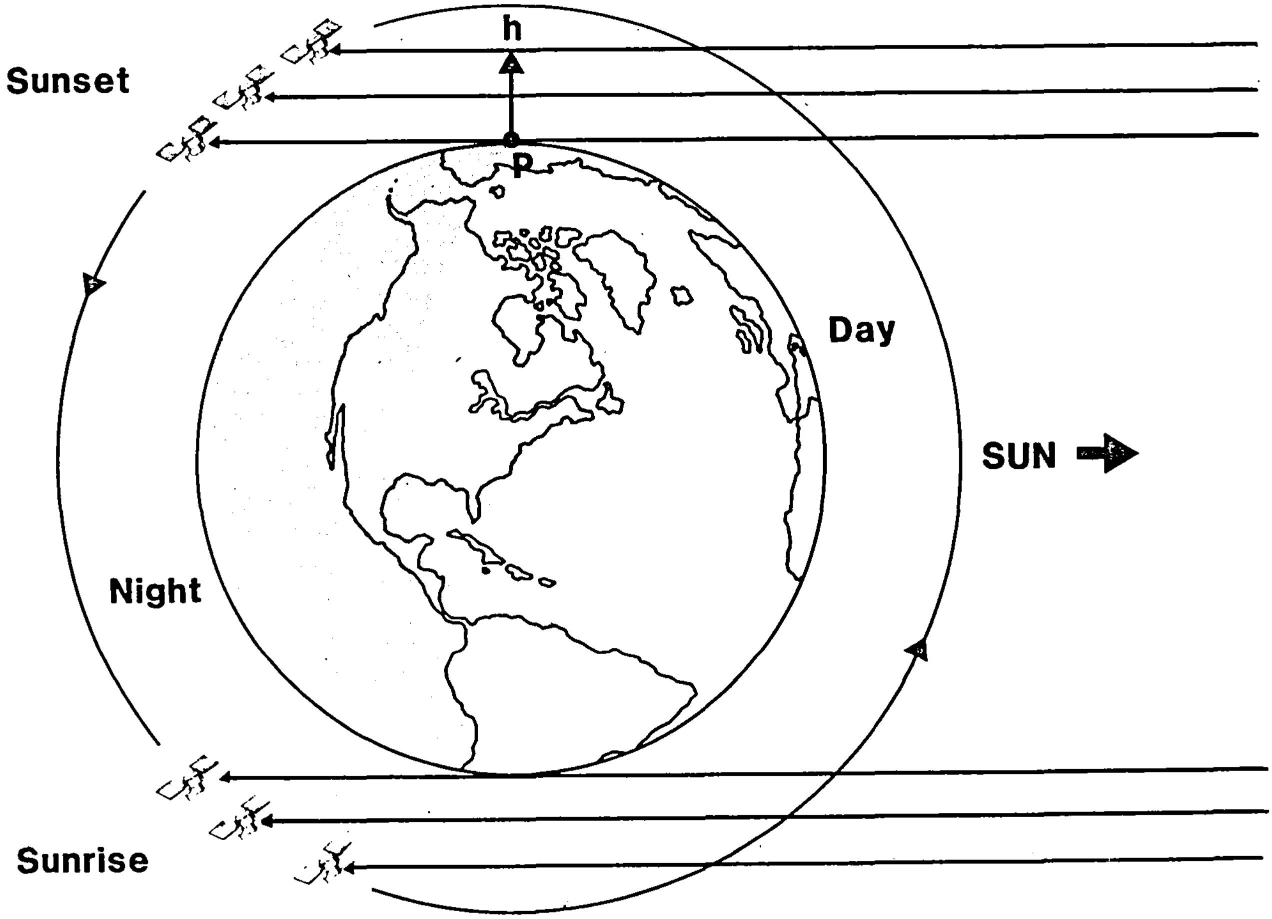


Figure 1. Viewing geometry of SAGE satellite system during a sunset and a sunrise. The tangent height (h) is located at point P at the surface.

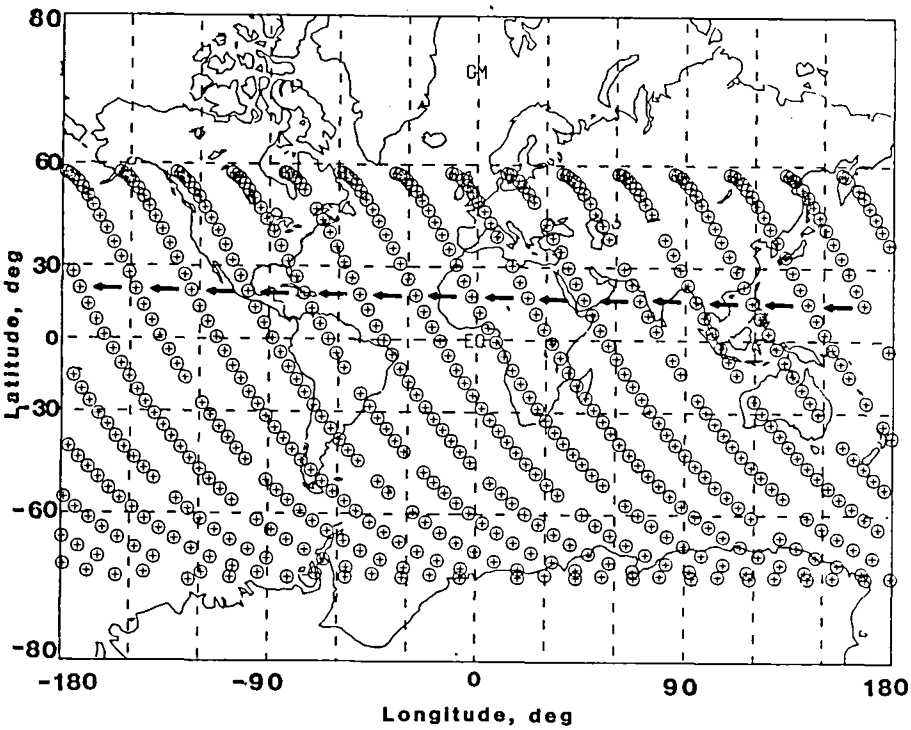


Figure 2. Example of a set of satellite sunset tangent locations for January 28–March 6, 1980. Arrows show direction of successive measurements.

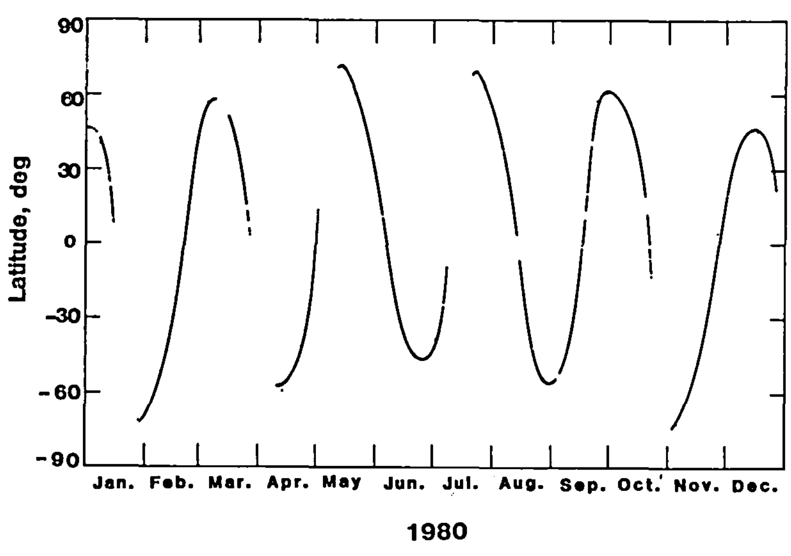


Figure 3. Latitudinal coverage of SAGE tangent locations for 1980 for sunset measurements.

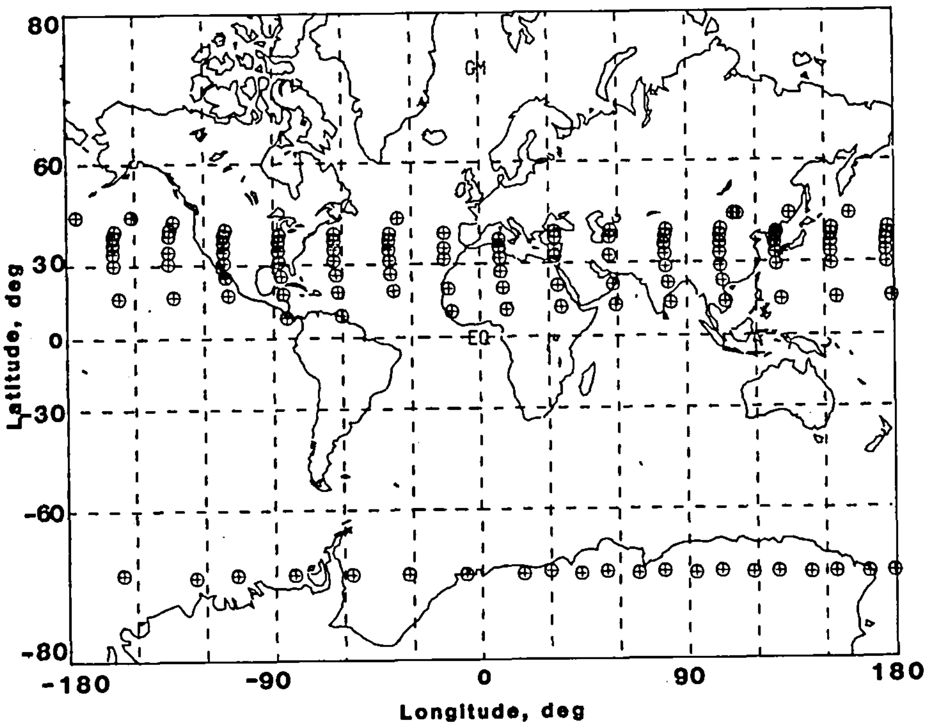


Figure 4. Map of measurement locations for sweep 10, sunset events, January 1–January 28, 1980.

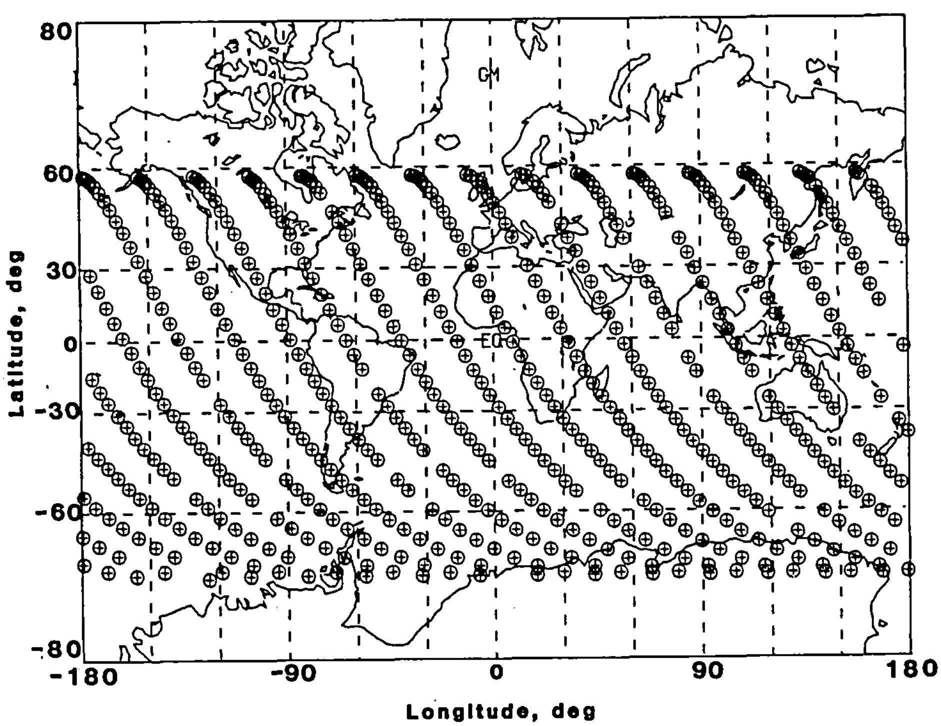


Figure 5. Map of measurement locations for sweep 11, sunset events, January 28–March 6, 1980.

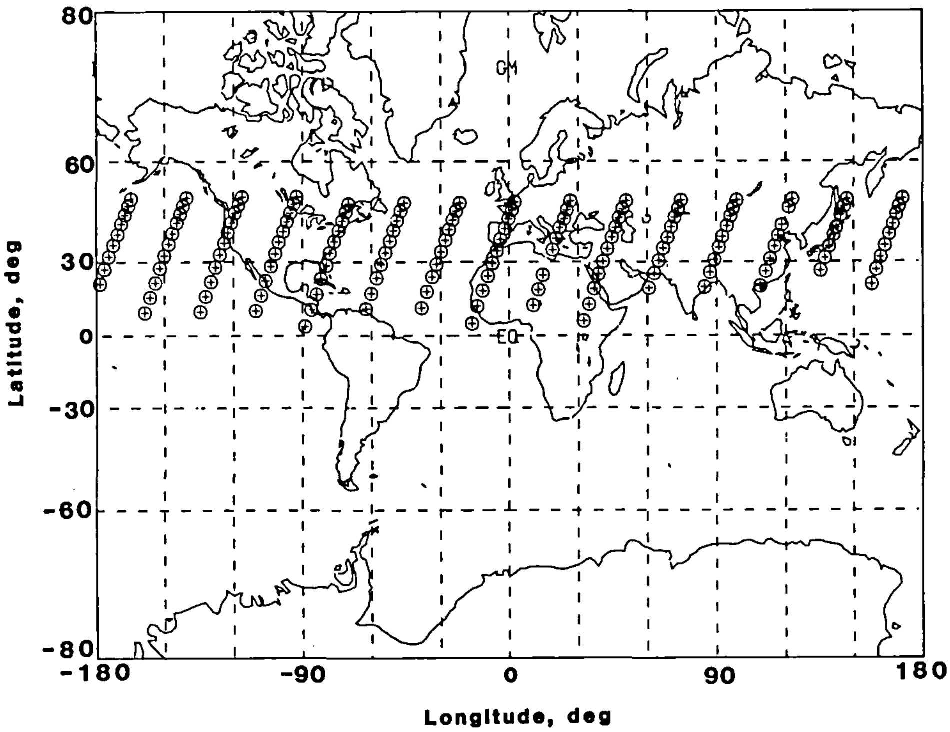


Figure 6. Map of measurement locations for sweep 12, sunset events, March 6–April 8, 1980.

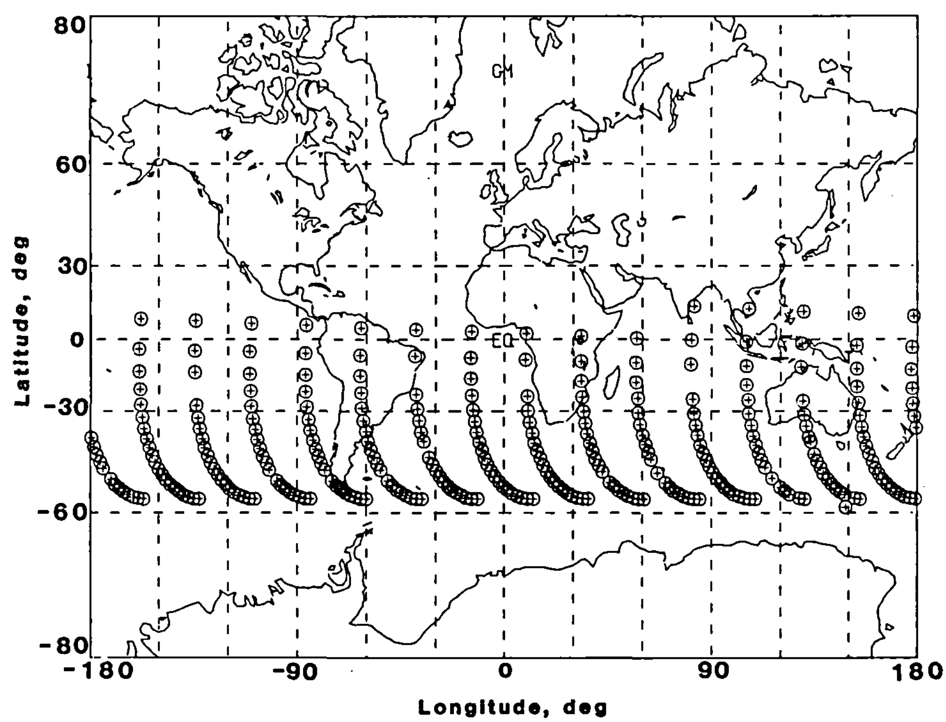


Figure 7. Map of measurement locations for sweep 13, sunset events, April 9–May 12, 1980.

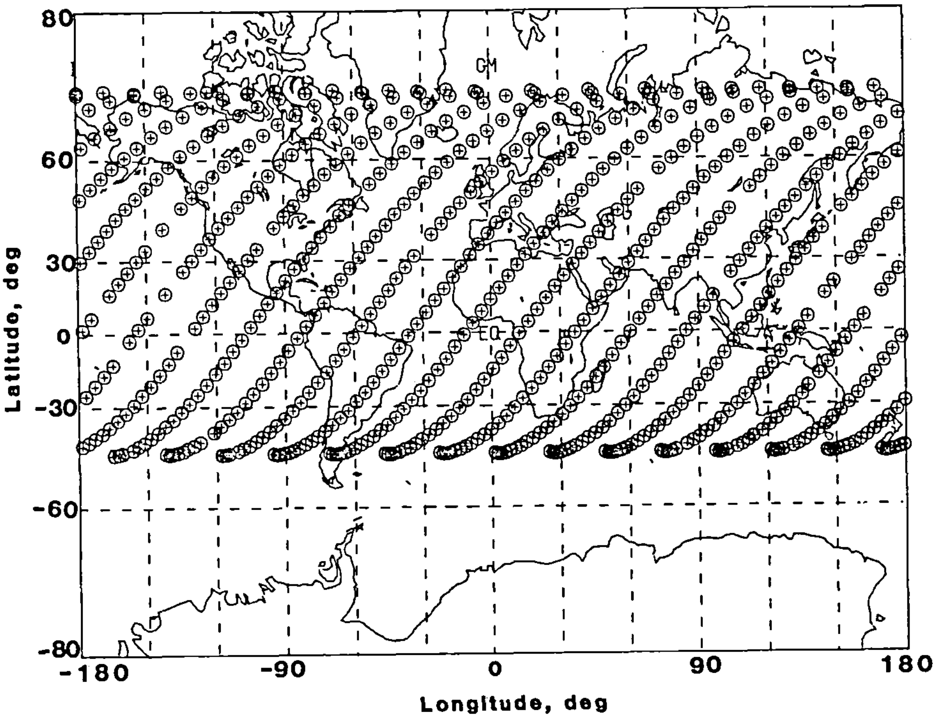


Figure 8. Map of measurement locations for sweep 14, sunset events, May 12–June 24, 1980.

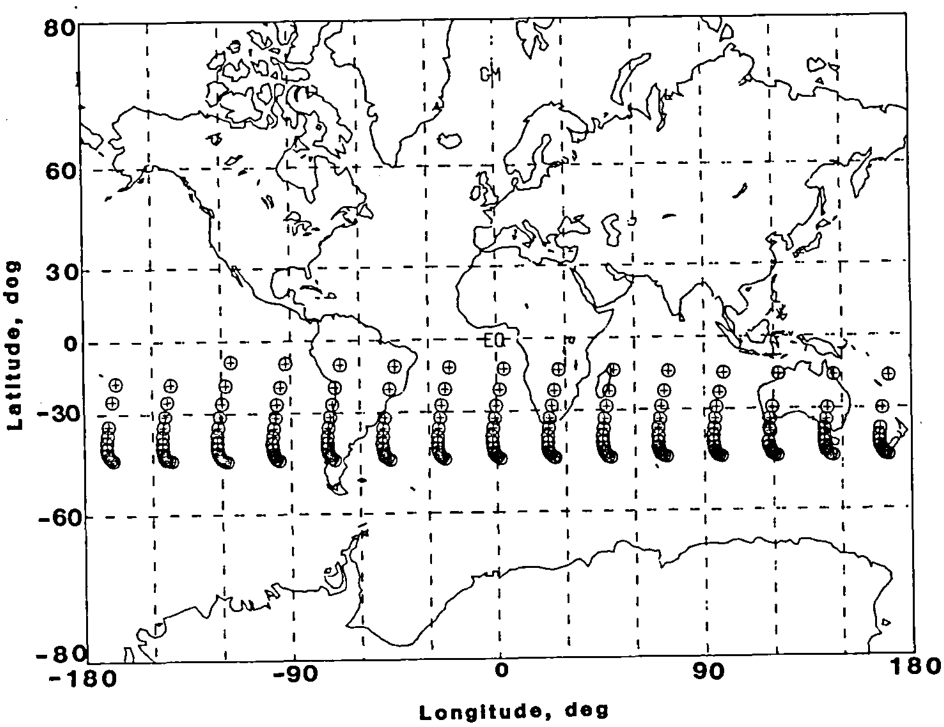


Figure 9. Map of measurement locations for sweep 15, sunset events, June 24–July 20, 1980.

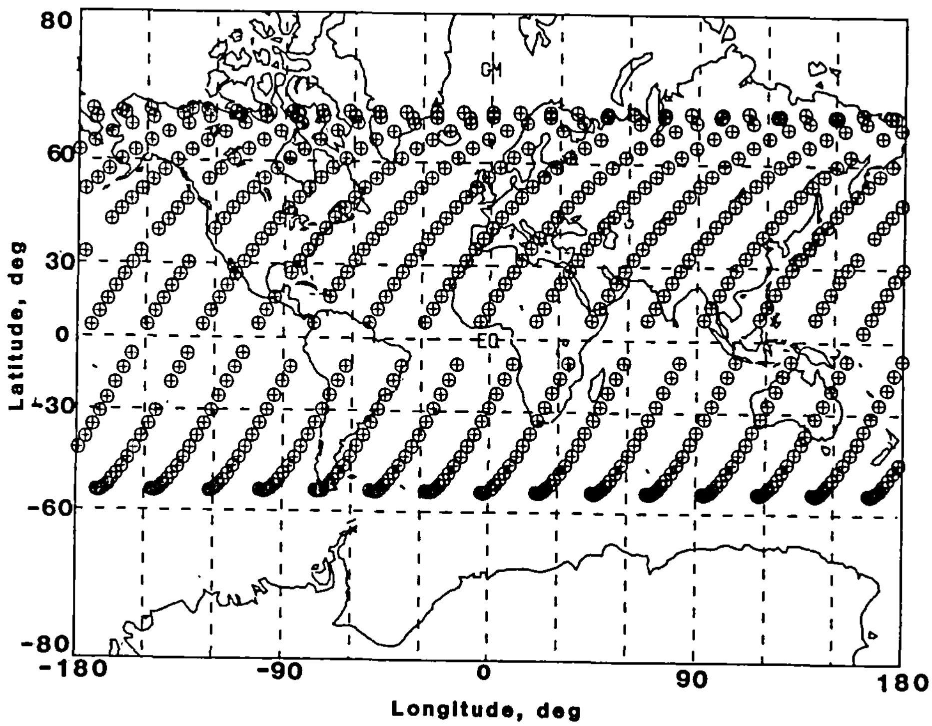


Figure 10. Map of measurement locations for sweep 16, sunset events, July 20–August 28, 1980.

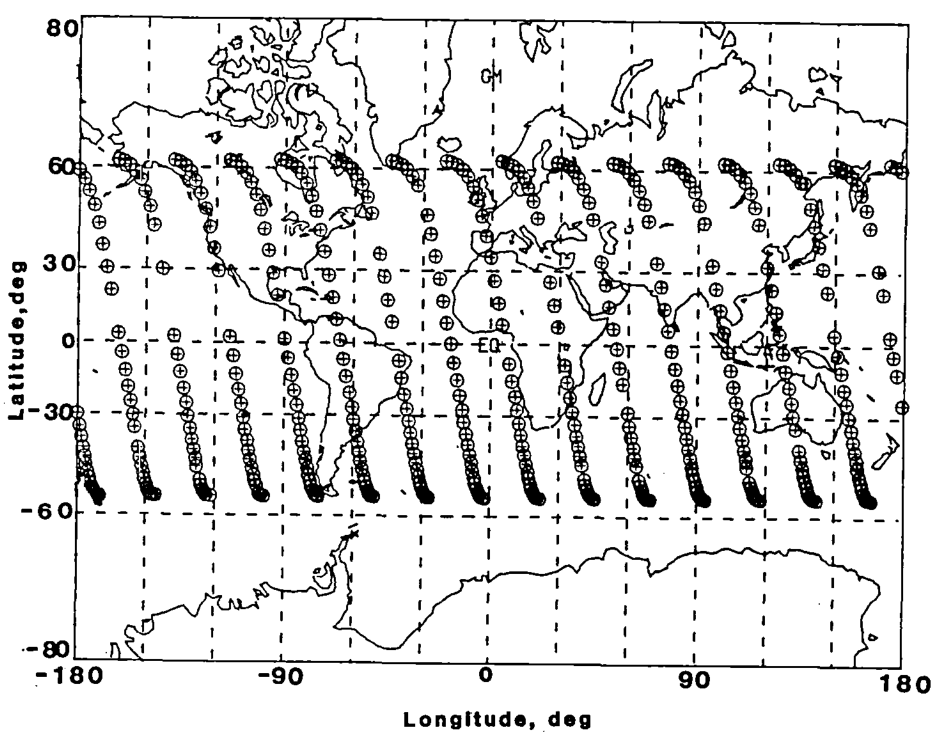


Figure 11. Map of measurement locations for sweep 17, sunset events, August 28–September 27, 1980.

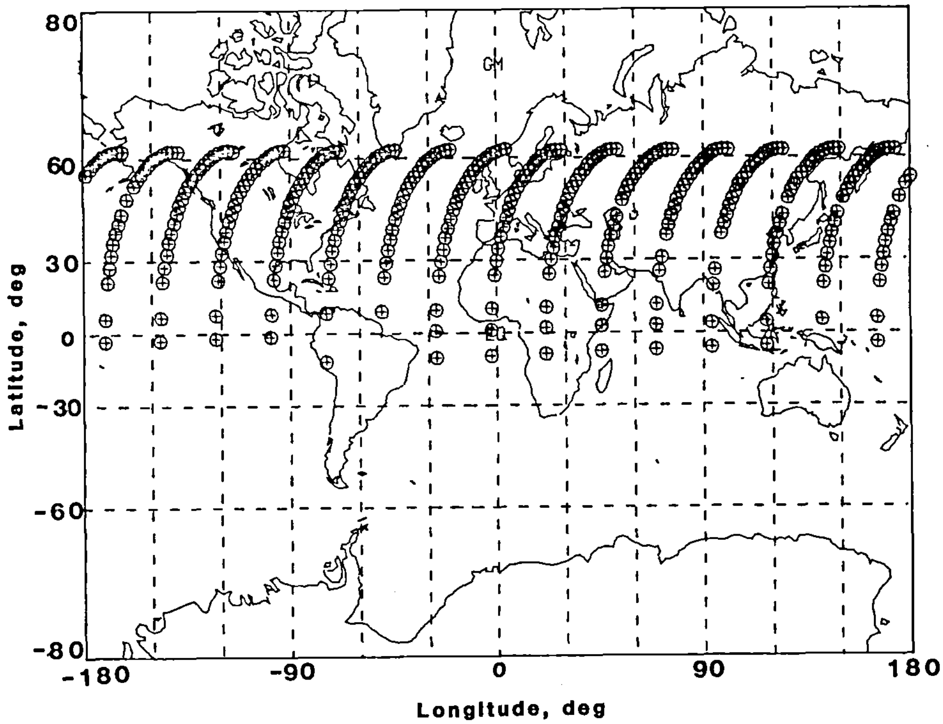


Figure 12. Map of measurement locations for sweep 18, sunset events, September 27–October 20, 1980.

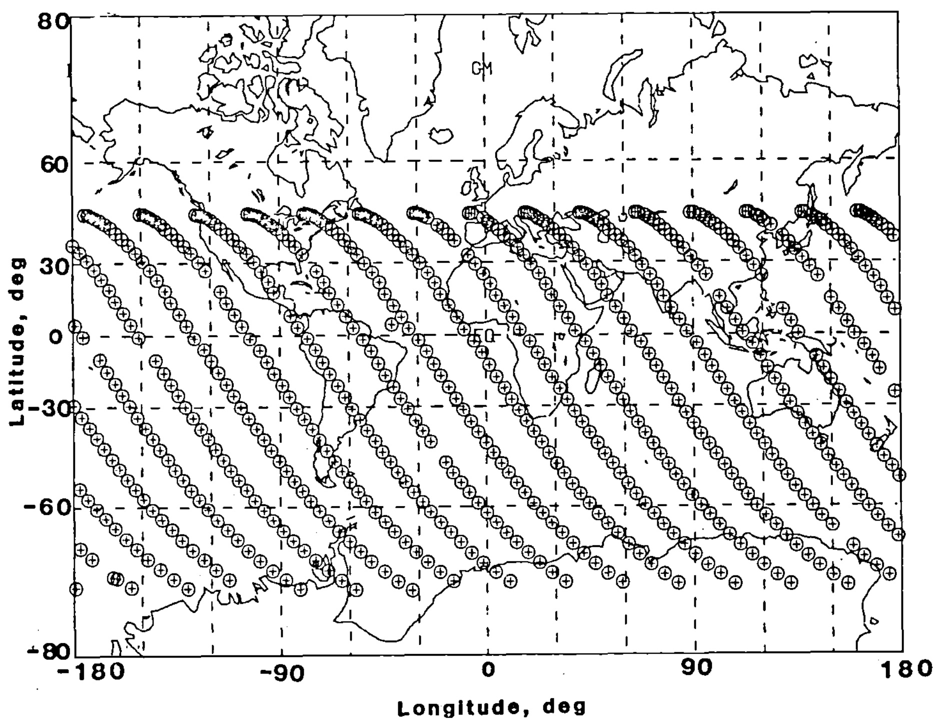


Figure 13. Map of measurement locations for sweep 19, sunset events, October 31–December 13, 1980.

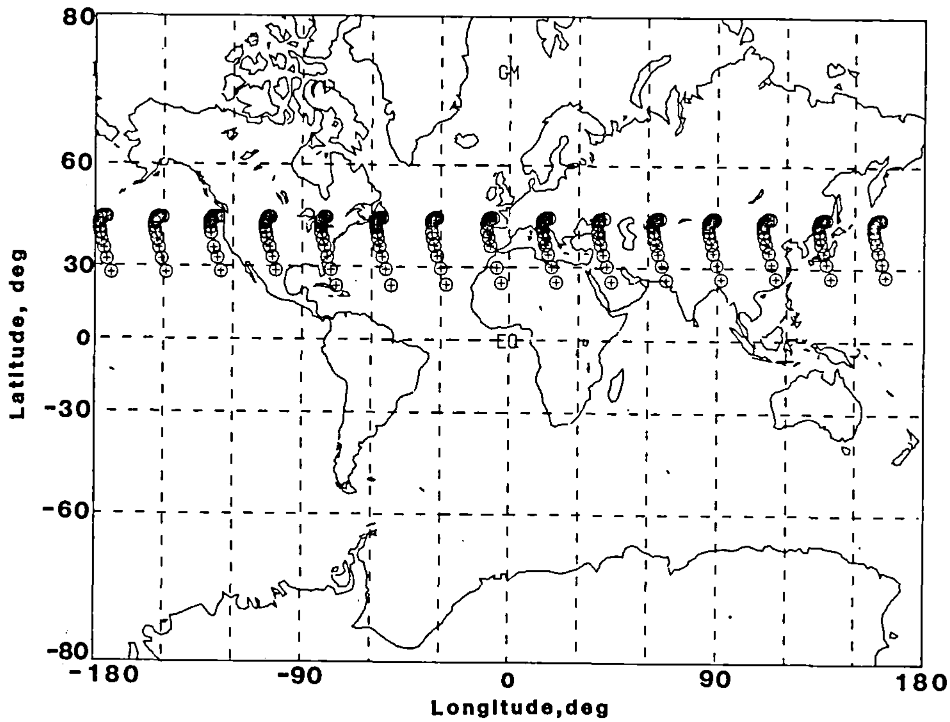


Figure 14. Map of measurement locations for sweep 20, sunset events, December 13–December 24, 1980.

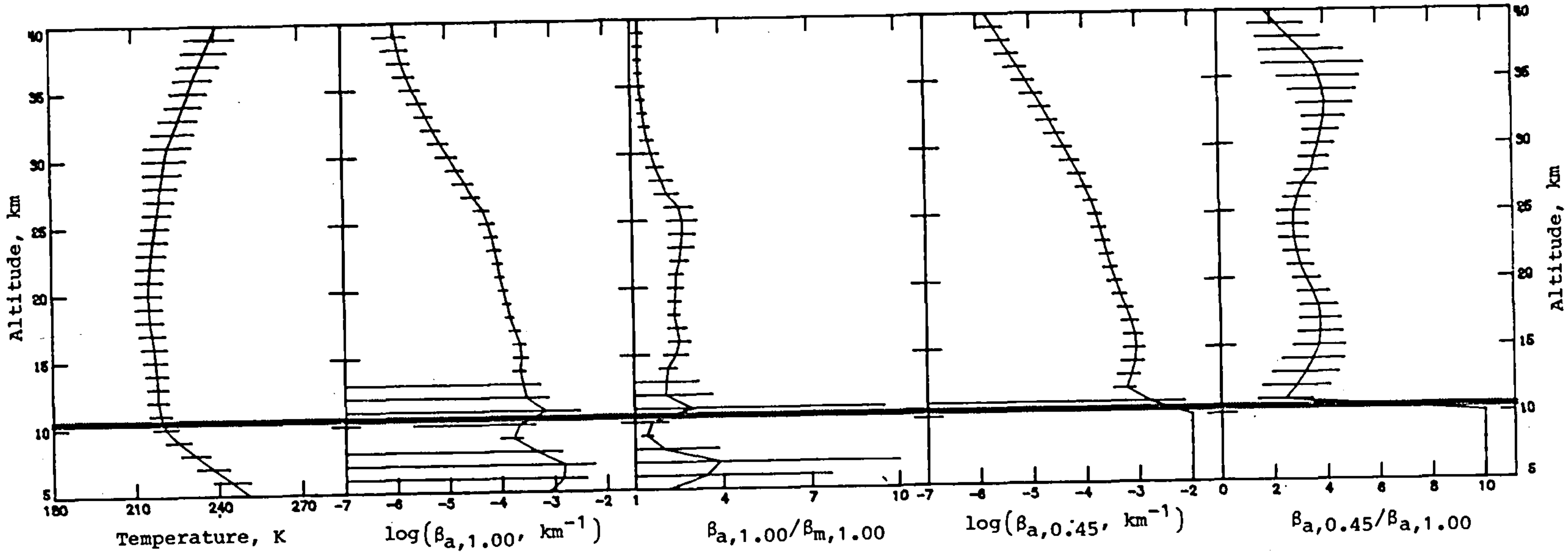


Figure 15. Average extinction and temperature profiles for latitude 45°N, January 1–January 7, 1980. Sunset events; sweep 10.

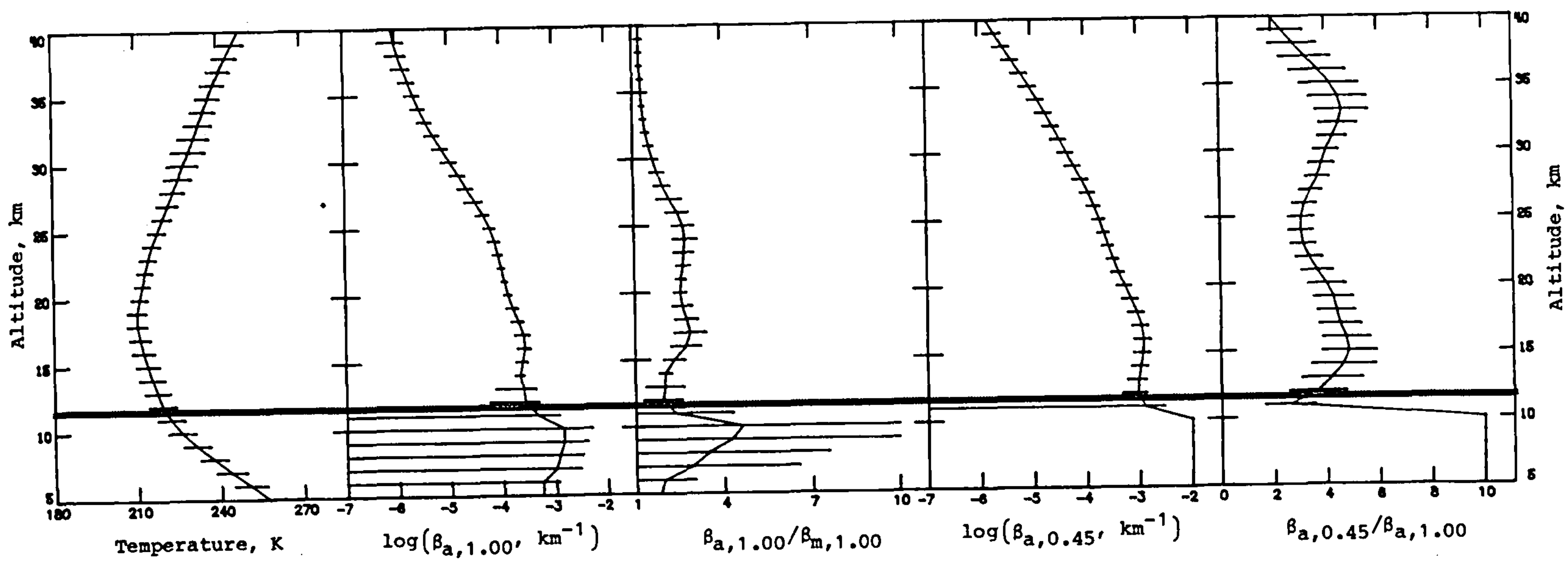


Figure 16. Average extinction and temperature profiles for latitude 35°N, January 7–January 10, 1980. Sunset events; sweep 10.

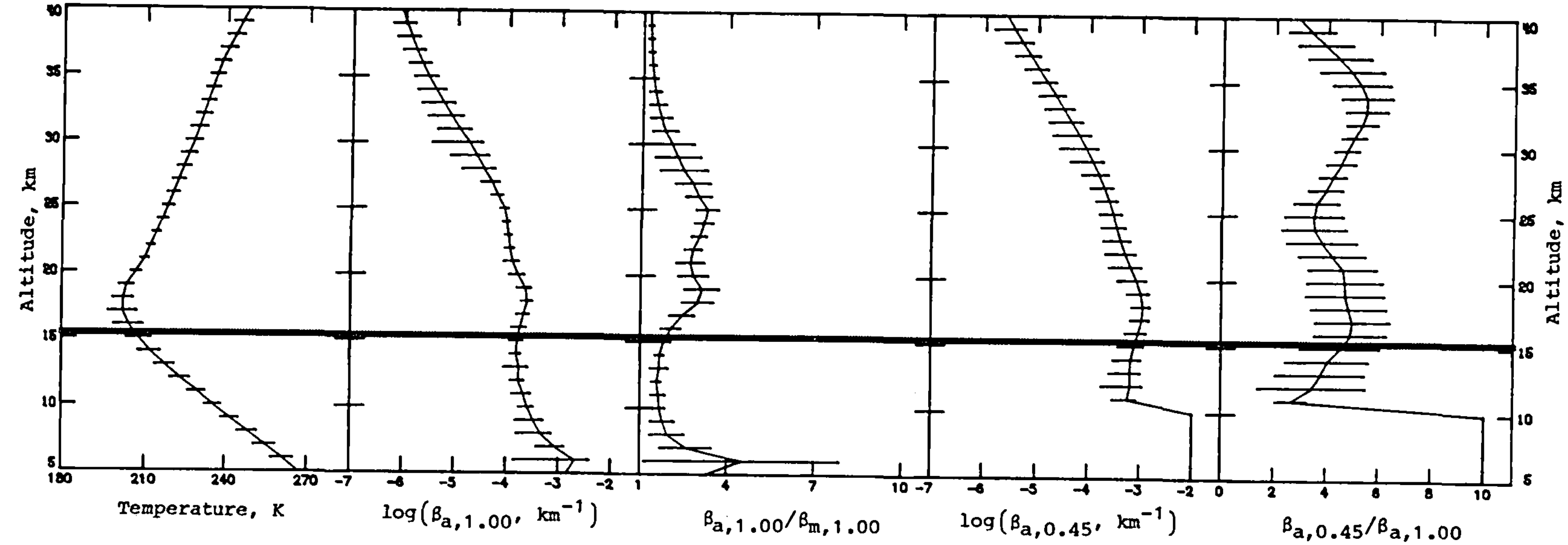


Figure 17. Average extinction and temperature profiles for latitude 25°N, January 10–January 12, 1980. Sunset events; sweep 10.

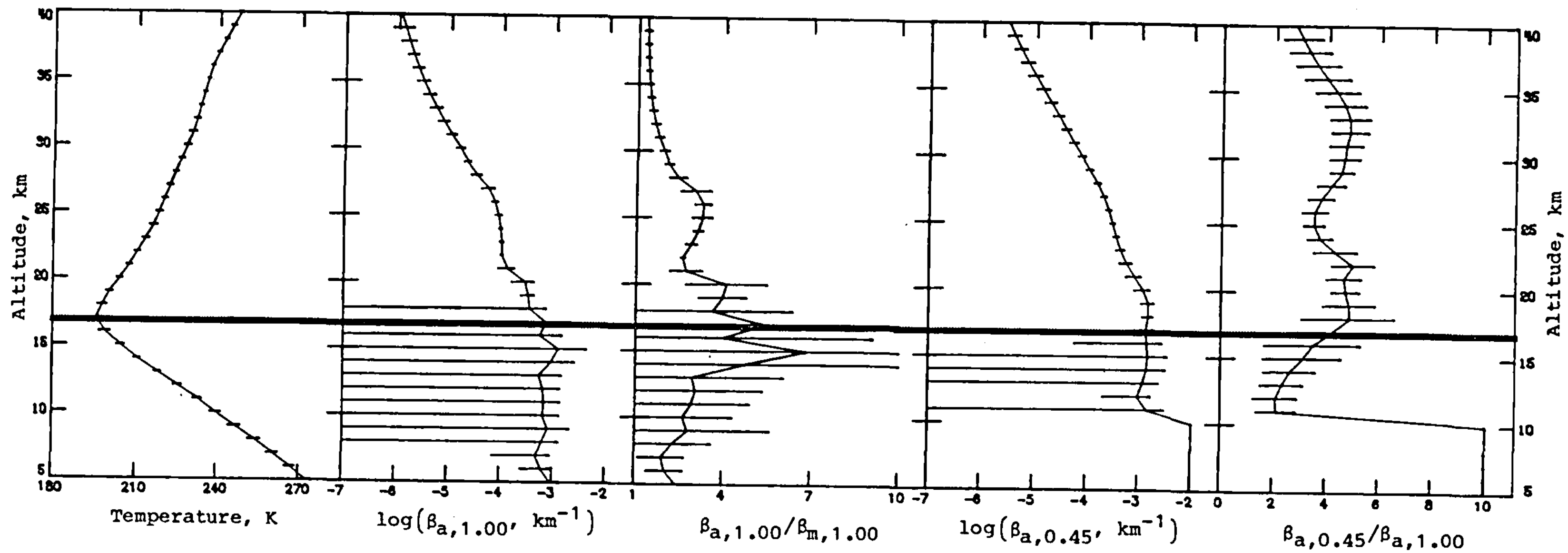


Figure 18. Average extinction and temperature profiles for latitude 15°N, January 12, 1980. Sunset events; sweep 10.

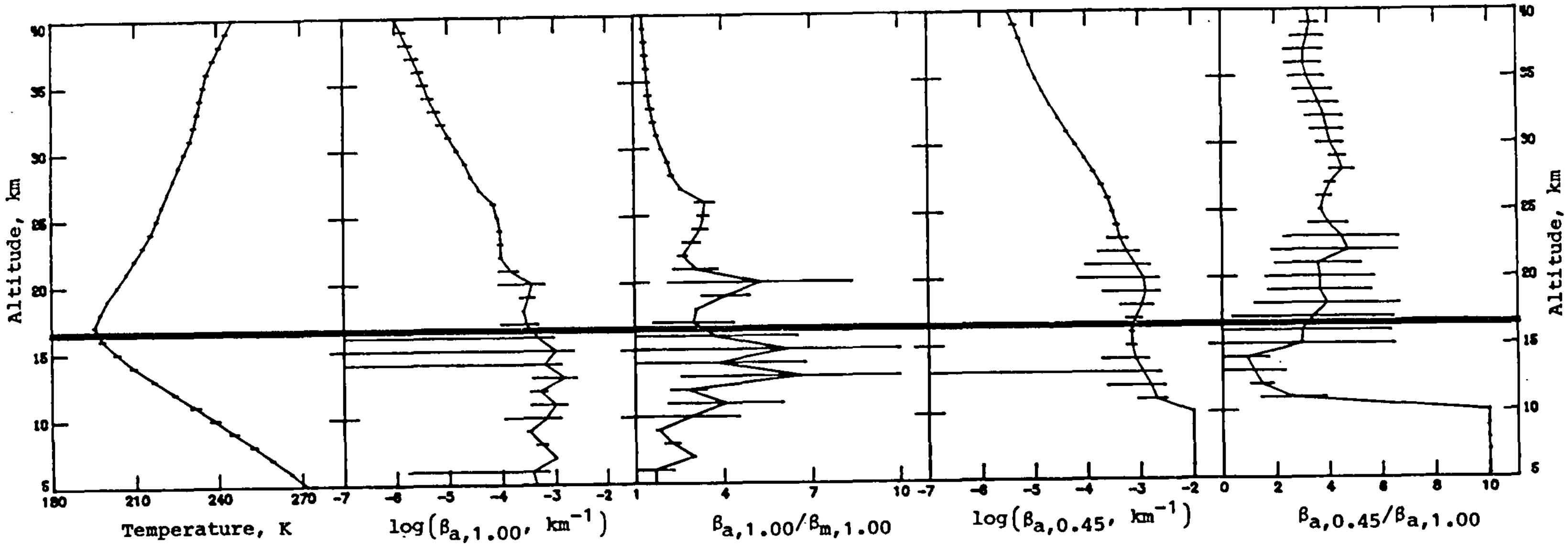


Figure 19. Average extinction and temperature profiles for latitude 5°N, January 13, 1980. Sunset events; sweep 10.

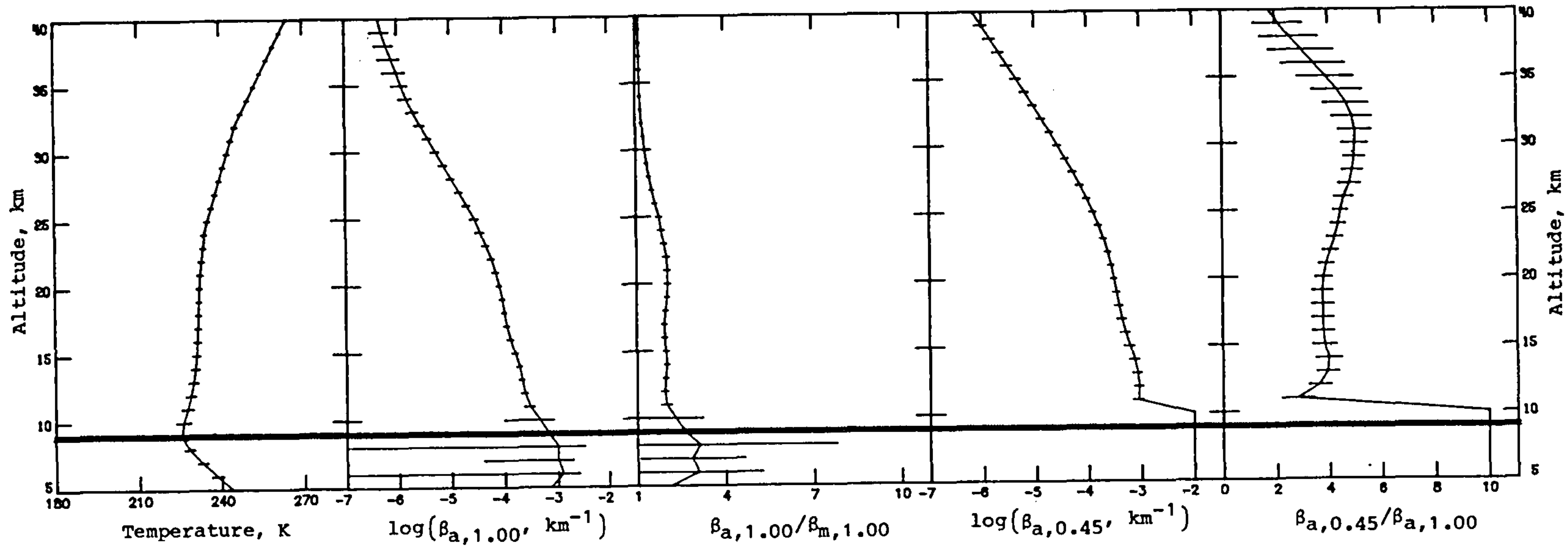


Figure 20. Average extinction and temperature profiles for latitude 75°S, January 27–January 28, 1980. Sunset events; sweep 10.

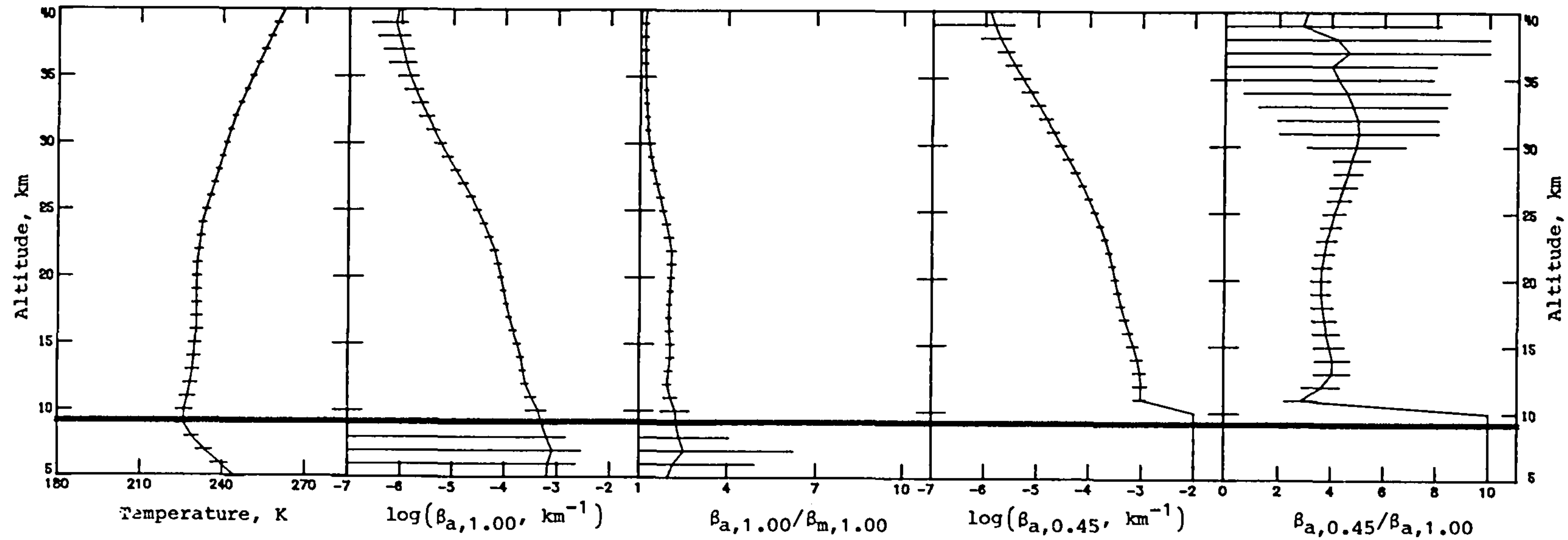


Figure 21. Average extinction and temperature profiles for latitude 65°S, January 30–February 4, 1980. Sunset events; sweep 11.

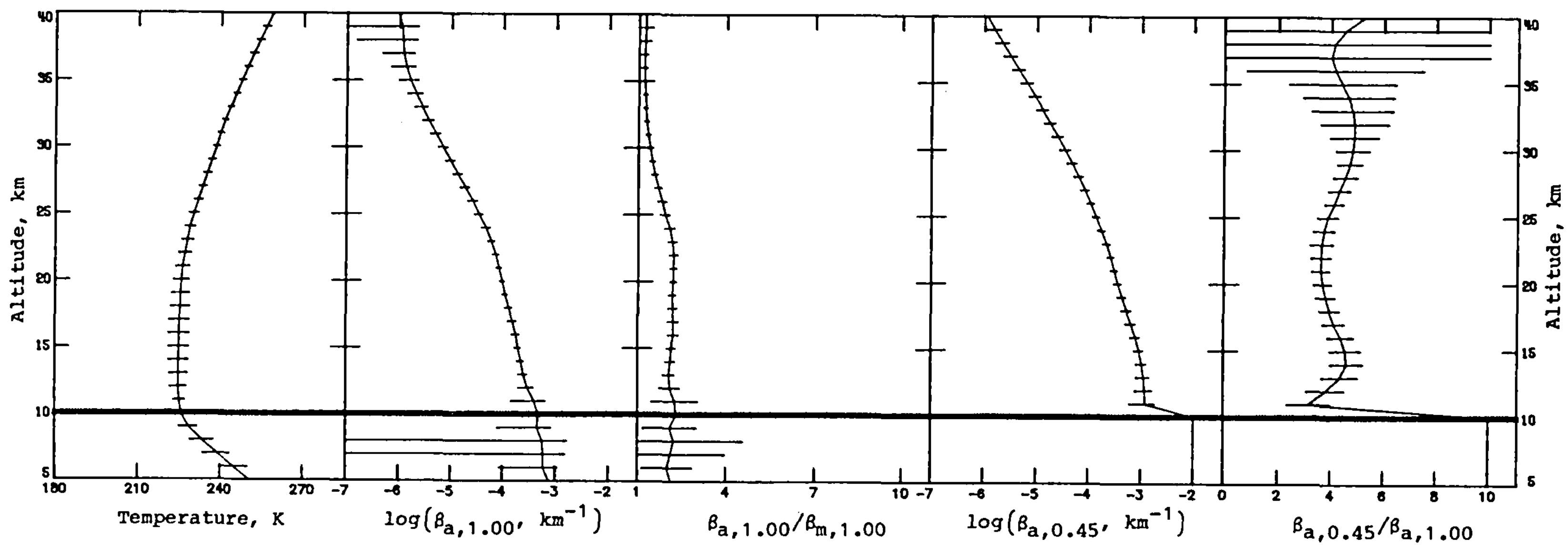


Figure 22. Average extinction and temperature profiles for latitude 55°S, February 4–February 8, 1980. Sunset events; sweep 11.

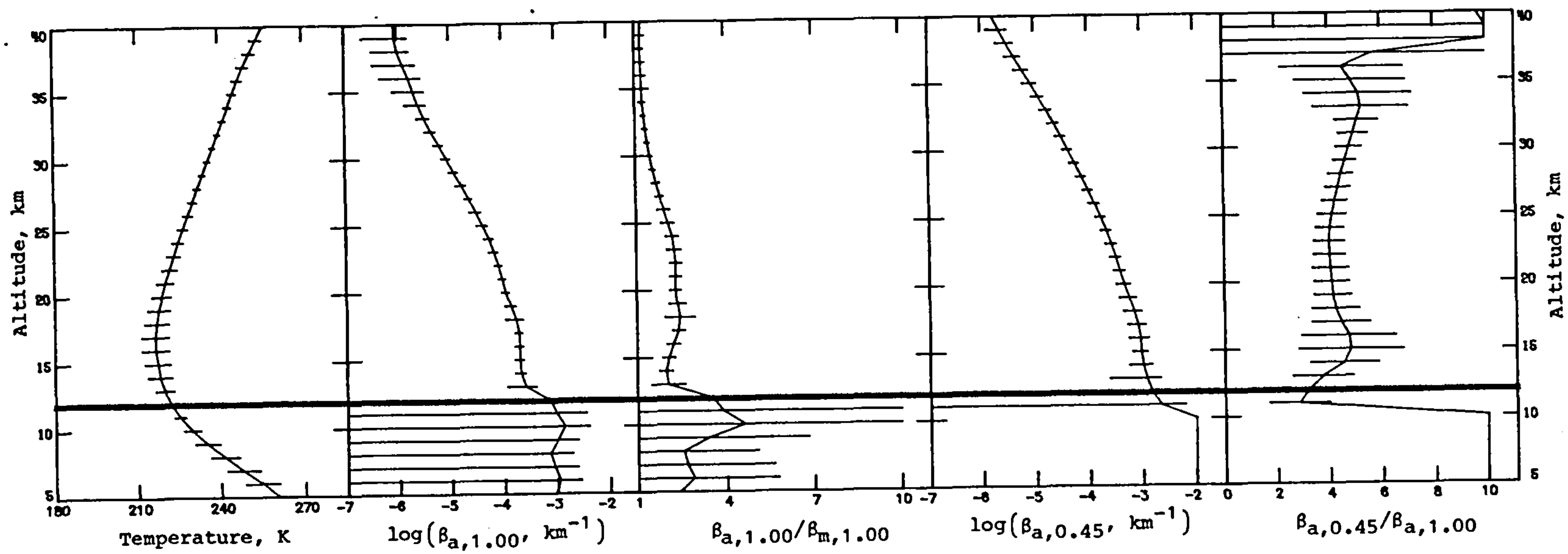


Figure 23. Average extinction and temperature profiles for latitude 45°S, February 8–February 11, 1980. Sunset events; sweep 11.

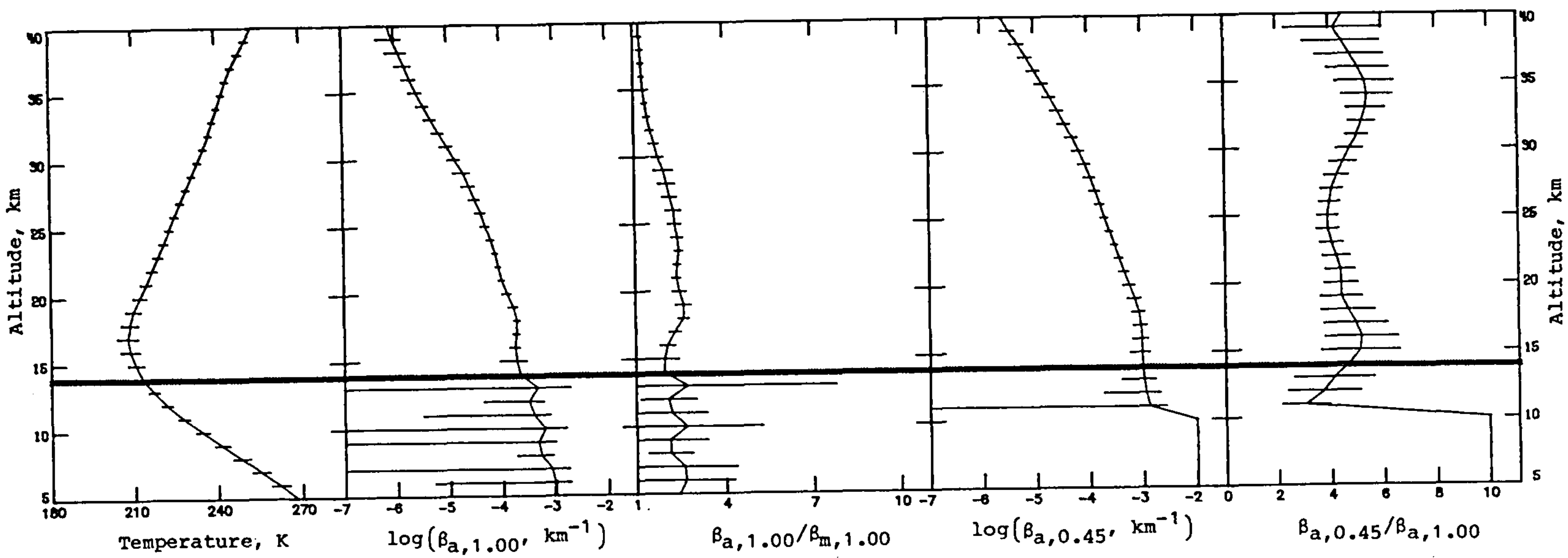


Figure 24. Average extinction and temperature profiles for latitude 35°S, February 11–February 14, 1980. Sunset events; sweep 11.

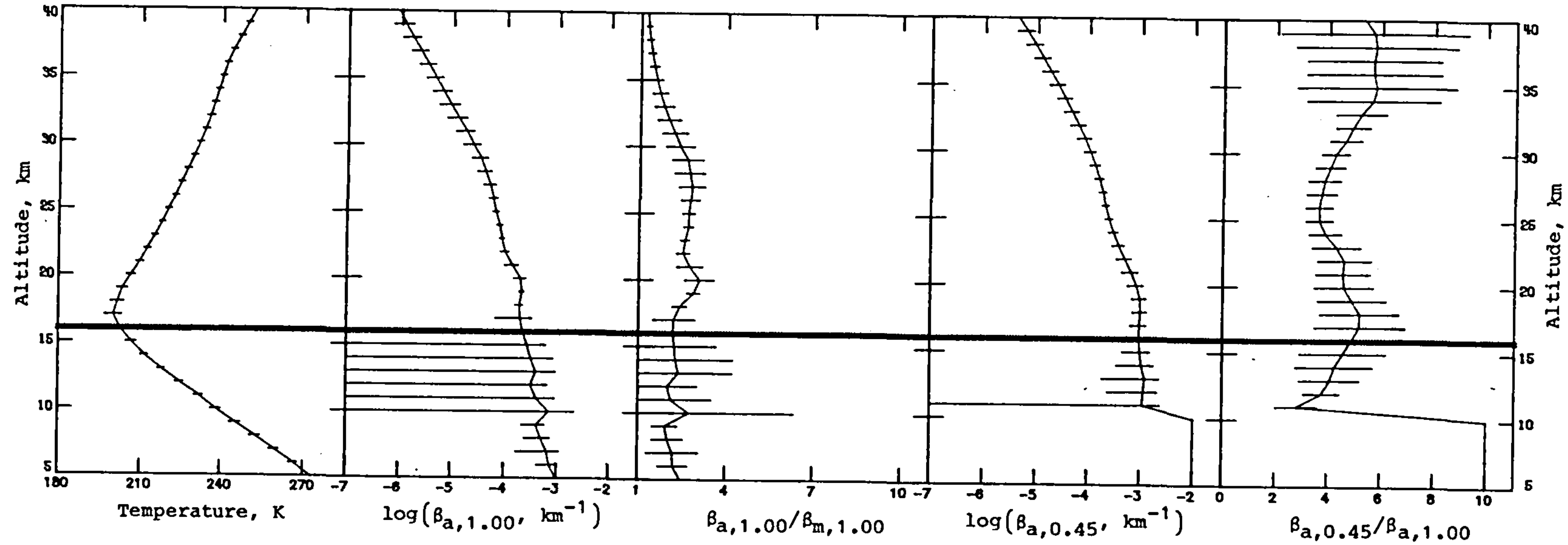


Figure 25. Average extinction and temperature profiles for latitude 25°S, February 14–February 16, 1980. Sunset events; sweep 11.

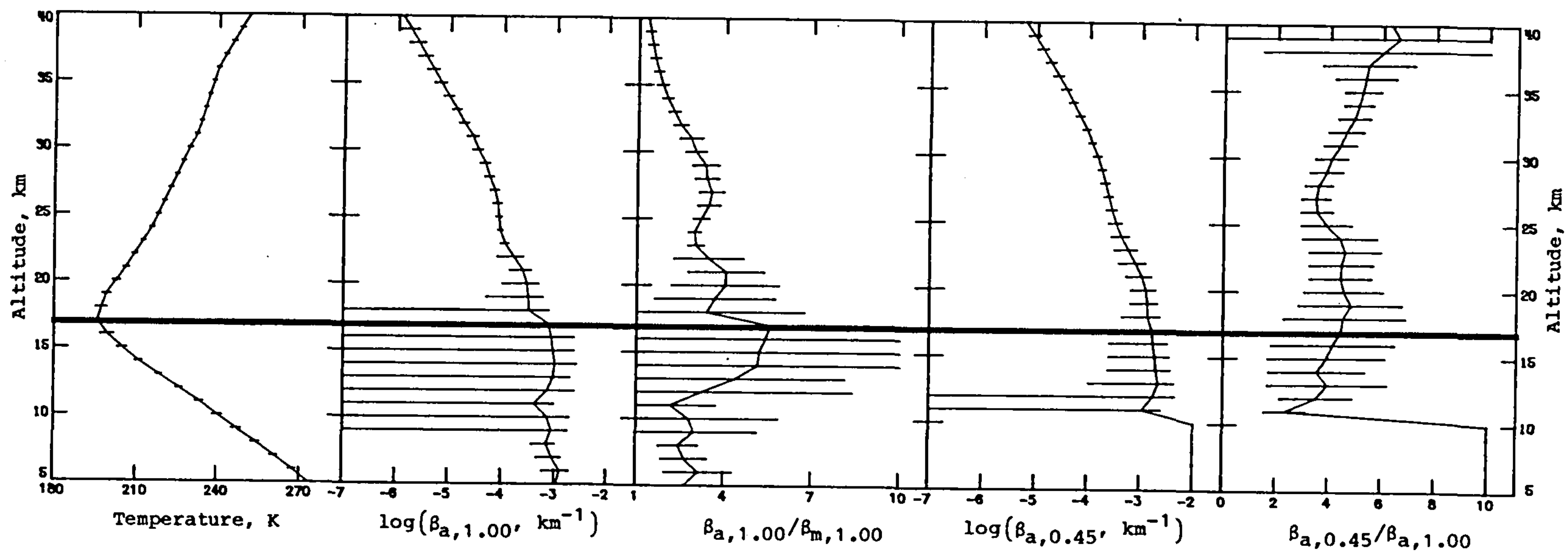


Figure 26. Average extinction and temperature profiles for latitude 15°S, February 16–February 18, 1980. Sunset events; sweep 11.

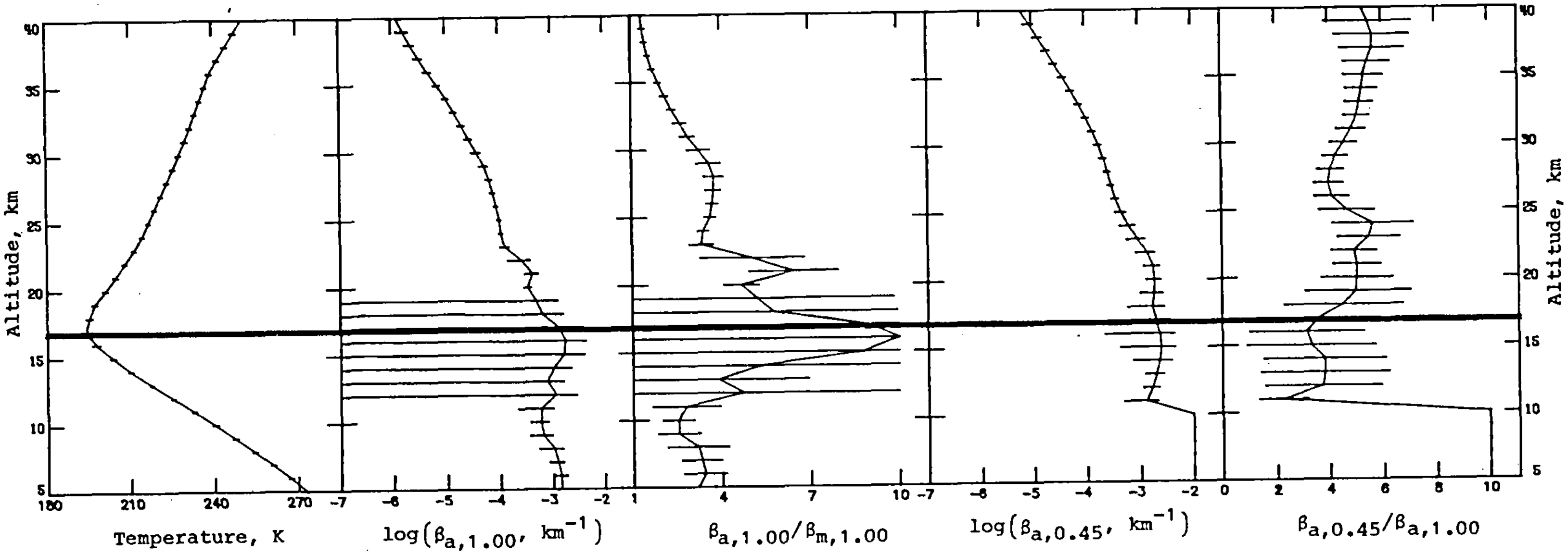


Figure 27. Average extinction and temperature profiles for latitude 5°S, February 18–February 19, 1980. Sunset events; sweep 11.

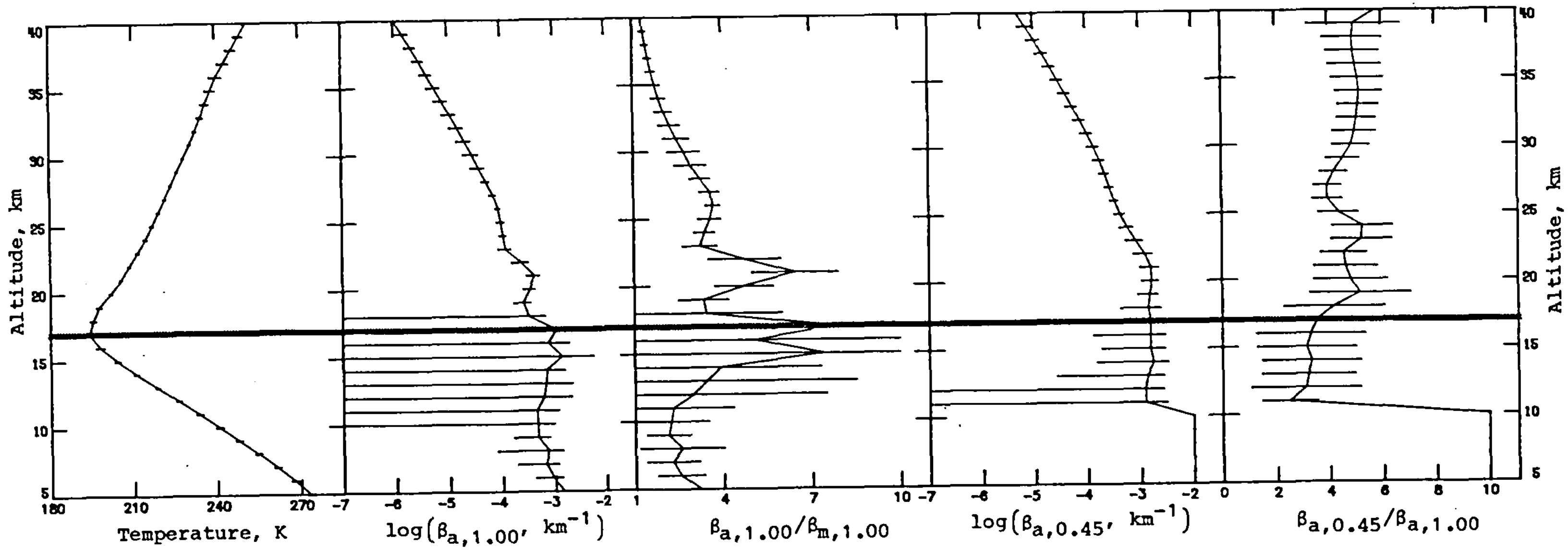


Figure 28. Average extinction and temperature profiles for latitude 5°N, February 19–February 21, 1980. Sunset events; sweep 11.

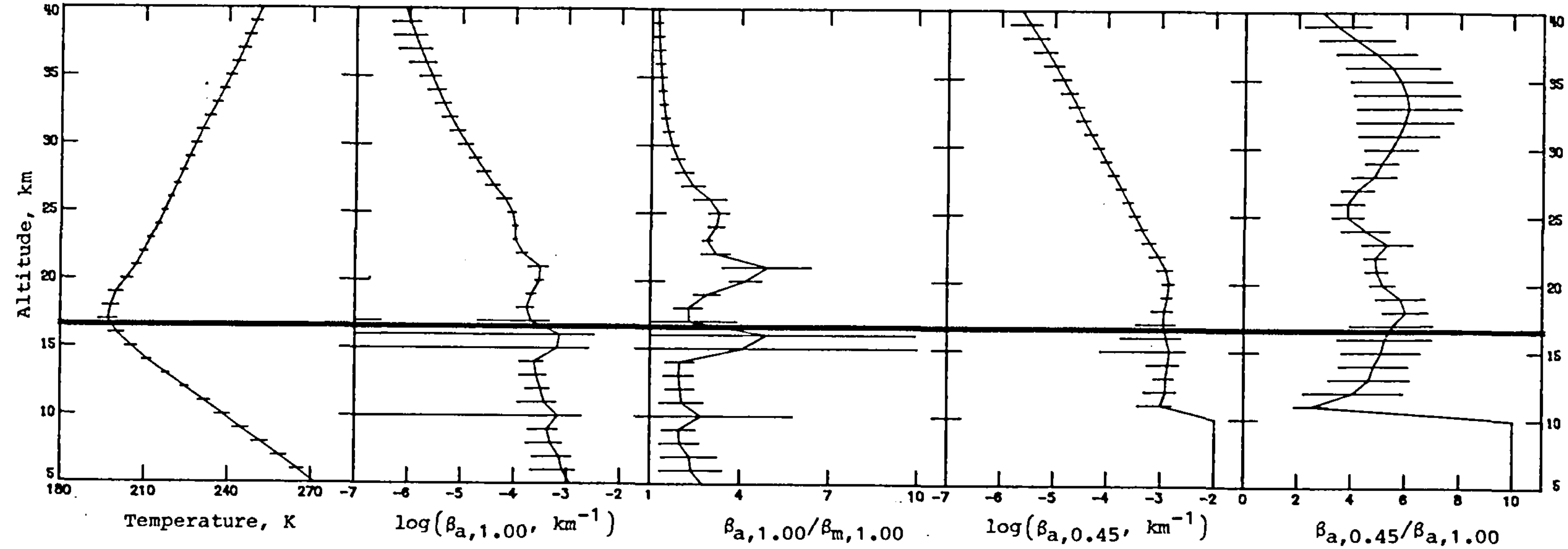


Figure 29. Average extinction and temperature profiles for latitude 15°N, February 21–February 22, 1980. Sunset events; sweep 11.

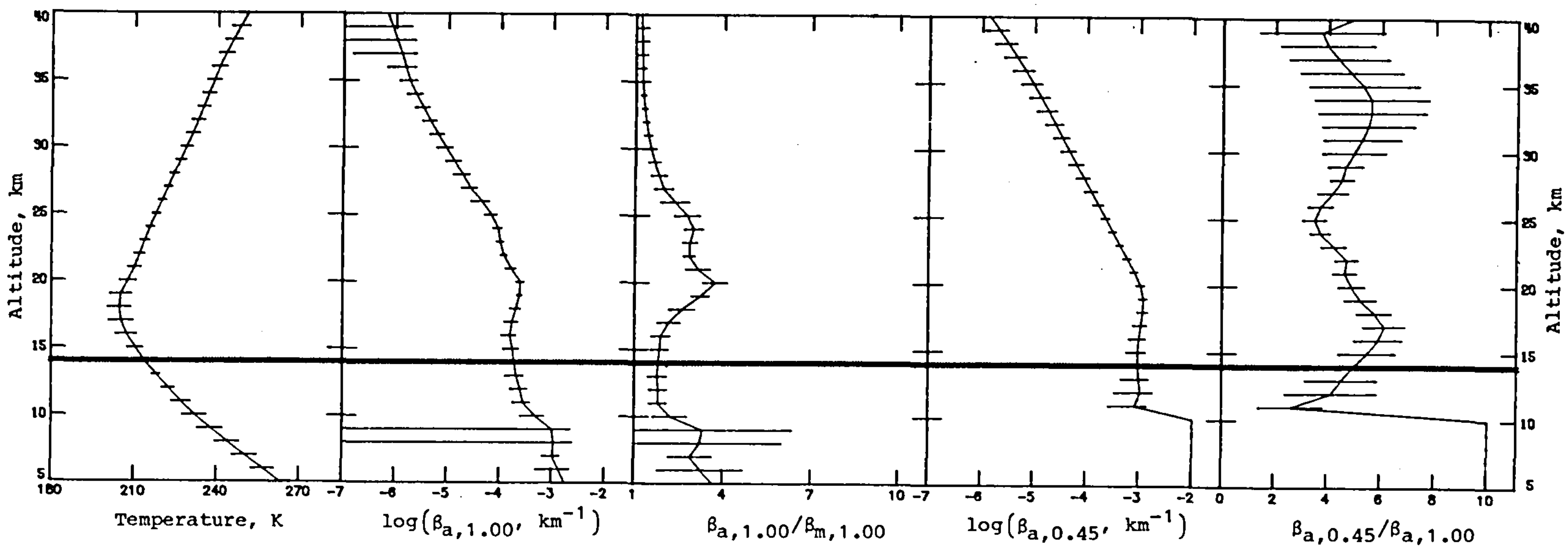


Figure 30. Average extinction and temperature profiles for latitude 25°N, February 22–February 23, 1980. Sunset events; sweep 11.

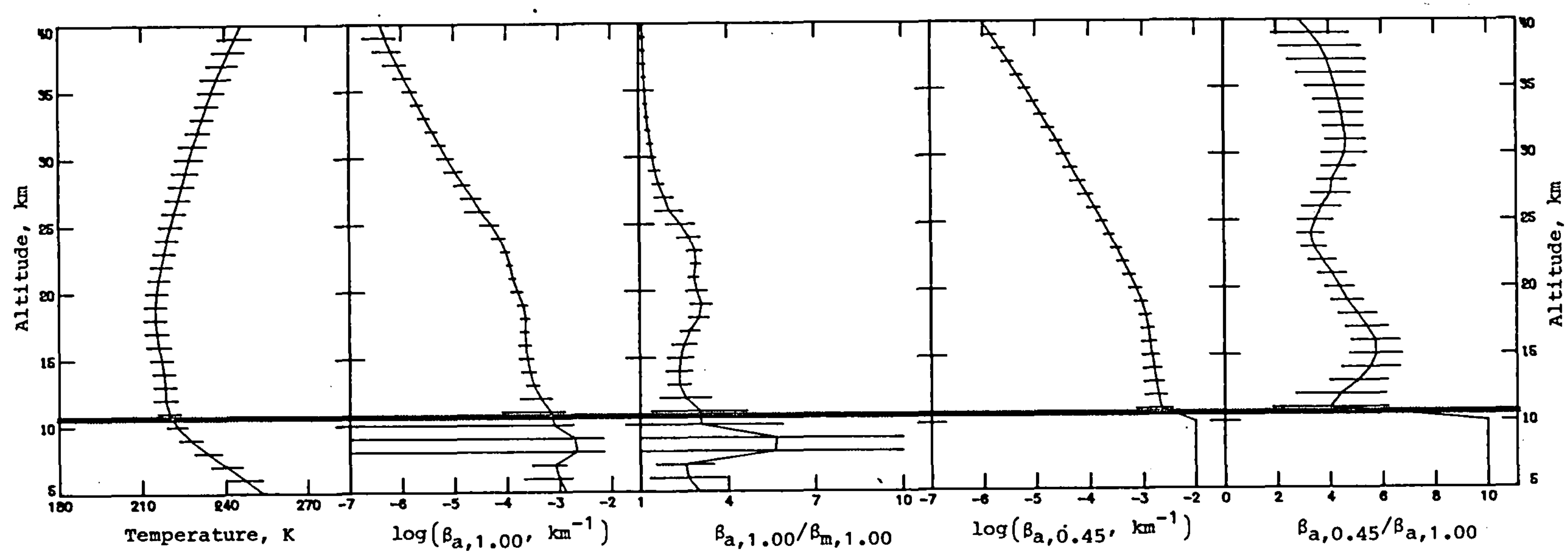


Figure 31. Average extinction and temperature profiles for latitude 35°N, February 23–February 26, 1980. Sunset events; sweep 11.

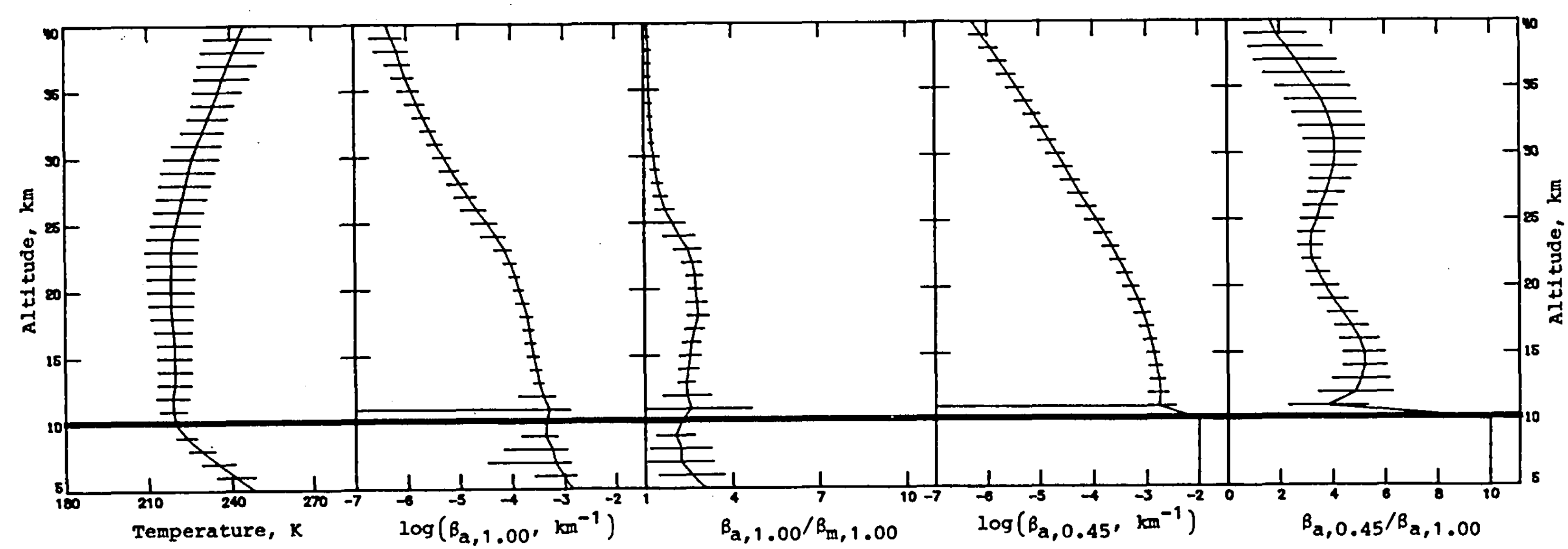


Figure 32. Average extinction and temperature profiles for latitude 45°N, February 26–February 29, 1980. Sunset events; sweep 11.

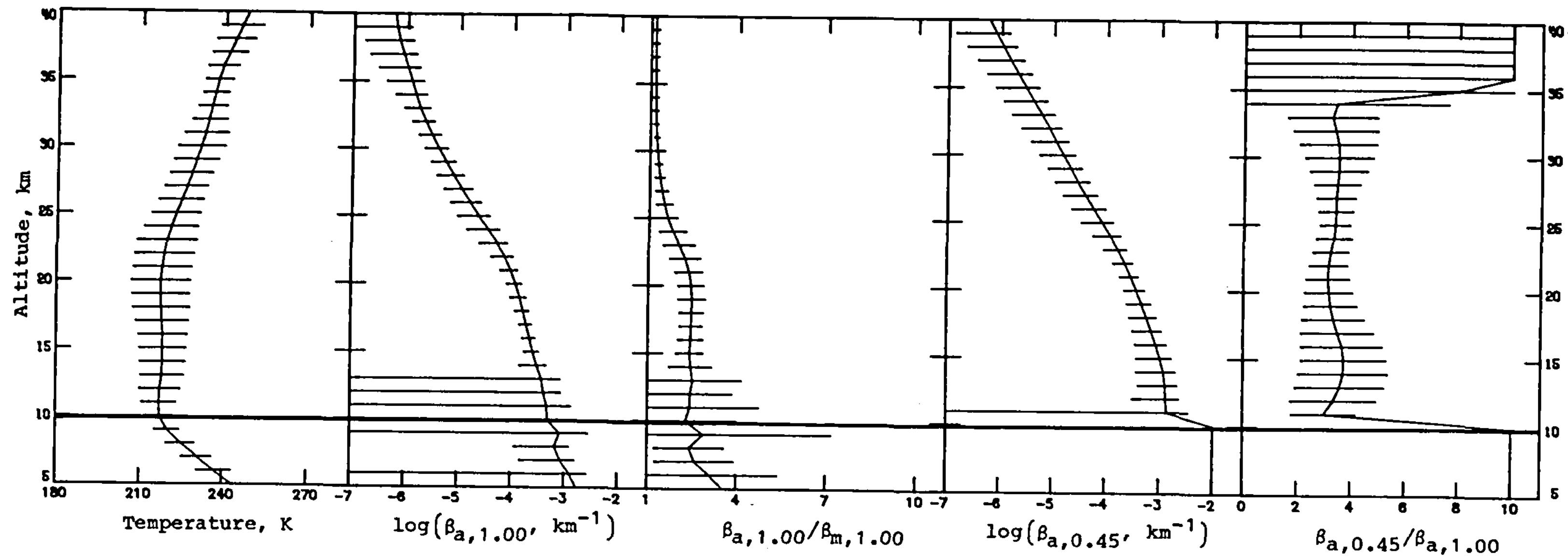


Figure 33. Average extinction and temperature profiles for latitude 55°N, February 29–March 6, 1980. Sunset events; sweep 11.

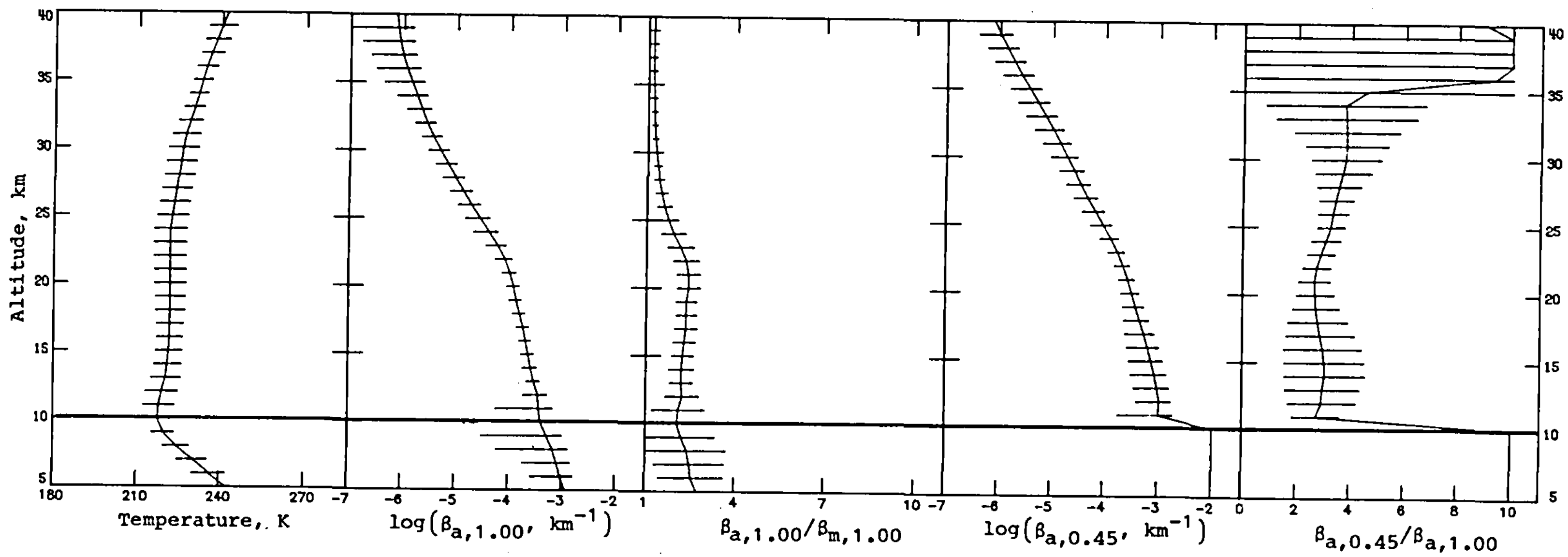


Figure 34. Average extinction and temperature profiles for latitude 55°N, March 6–March 14, 1980. Sunset events; sweep 12.

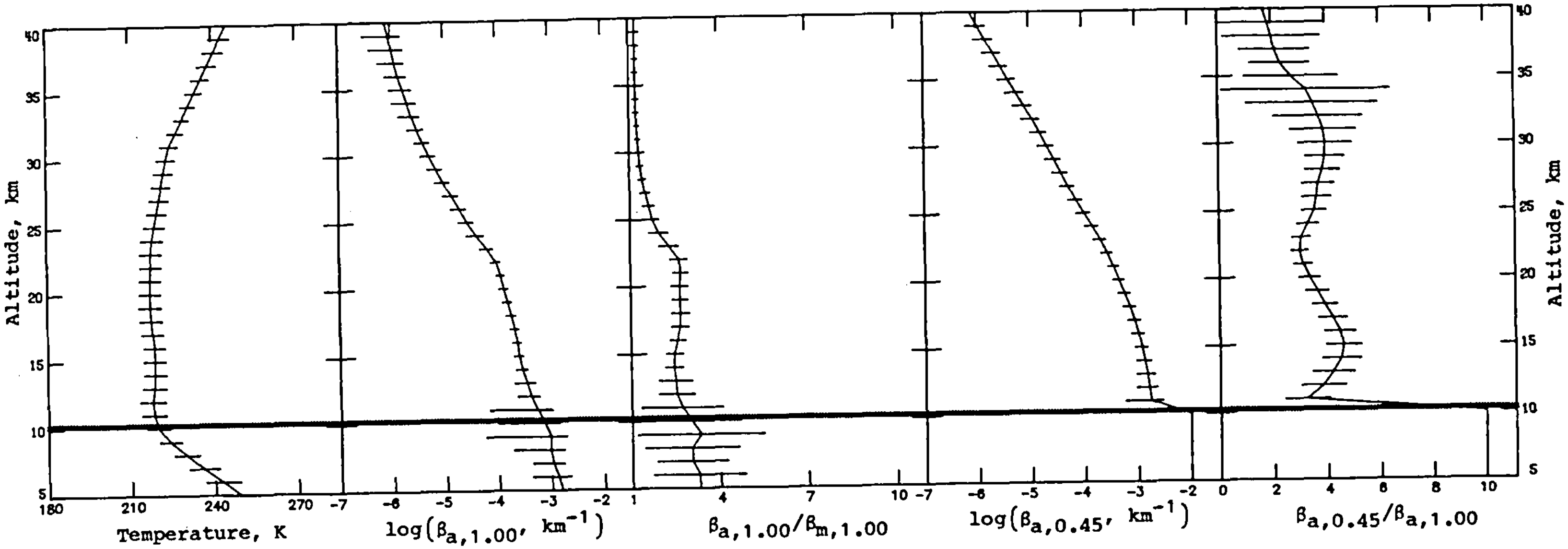


Figure 35. Average extinction and temperature profiles for latitude 45°N, March 14–March 18, 1980. Sunset events; sweep 12.

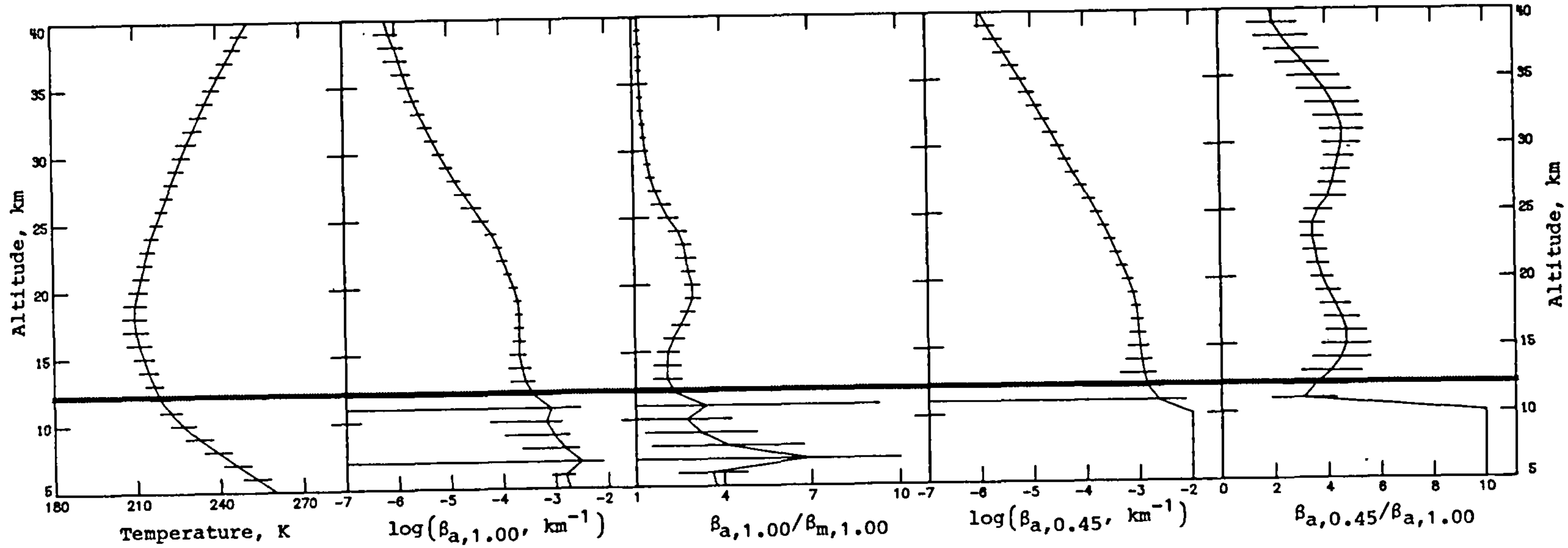


Figure 36. Average extinction and temperature profiles for latitude 35°N, March 18–March 20, 1980. Sunset events; sweep 12.

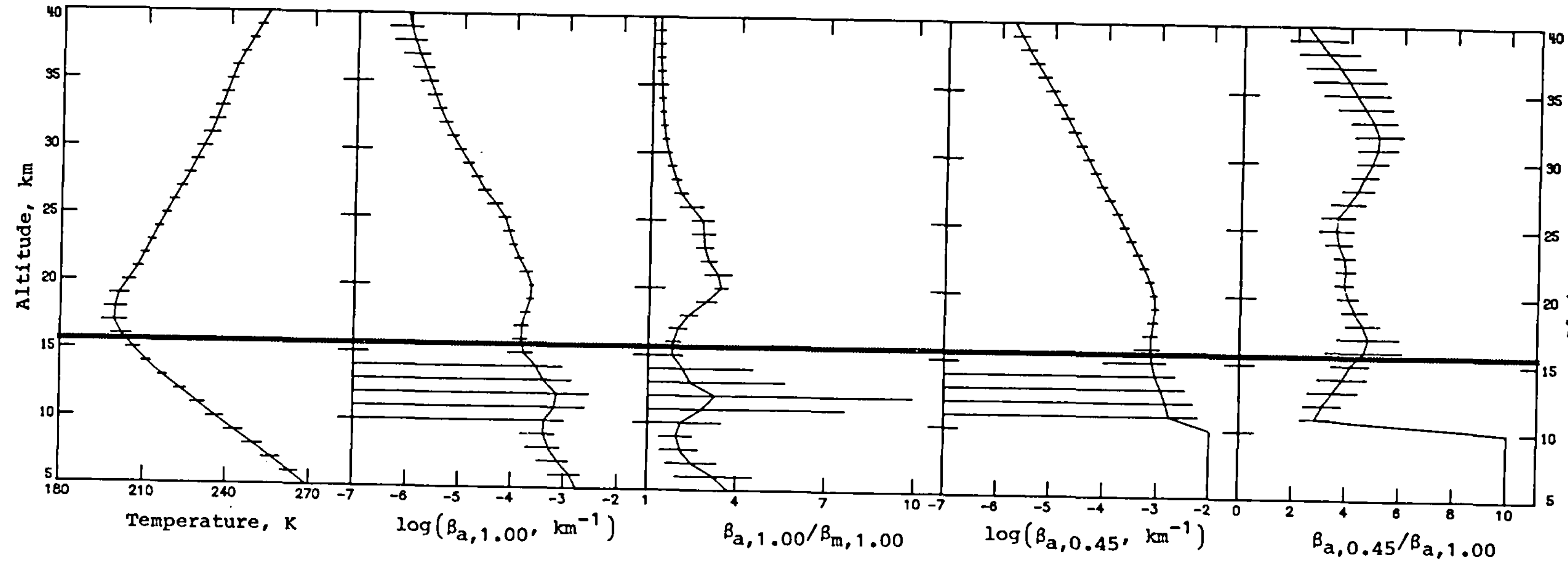


Figure 37. Average extinction and temperature profiles for latitude 25°N, March 20–March 22, 1980. Sunset events; sweep 12.

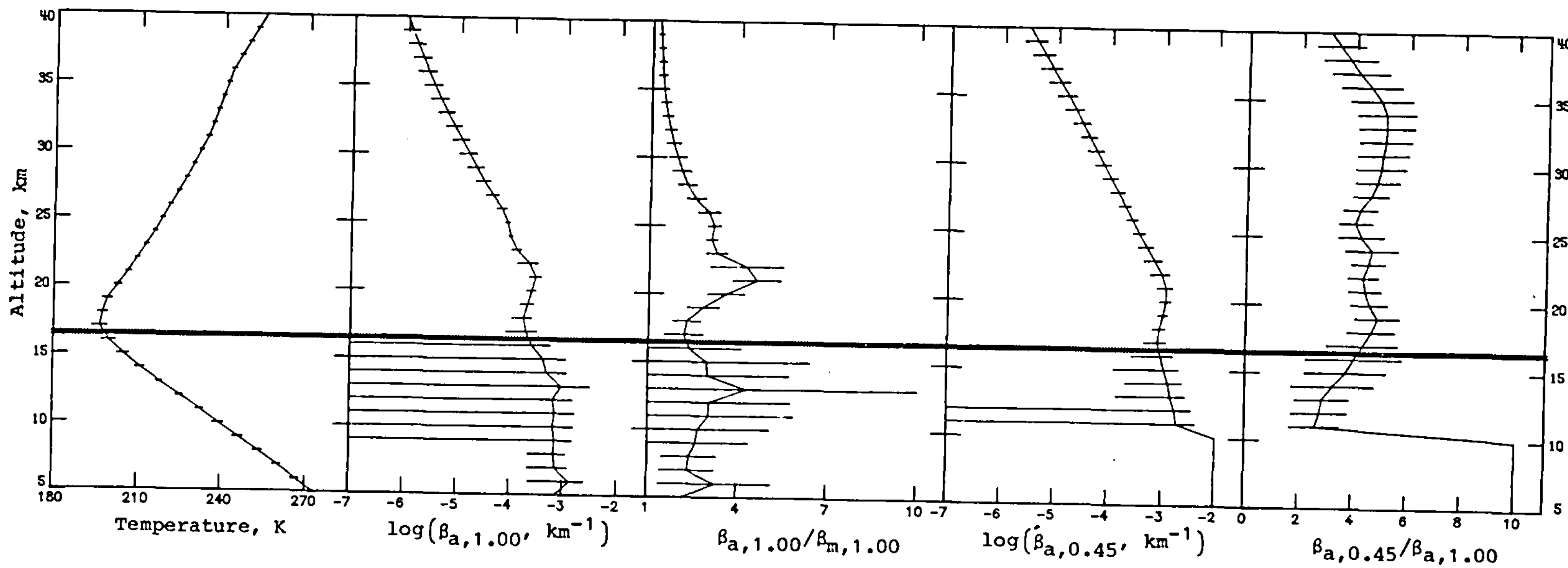


Figure 38. Average extinction and temperature profiles for latitude 15°N, March 22–March 23, 1980. Sunset events; sweep 12.

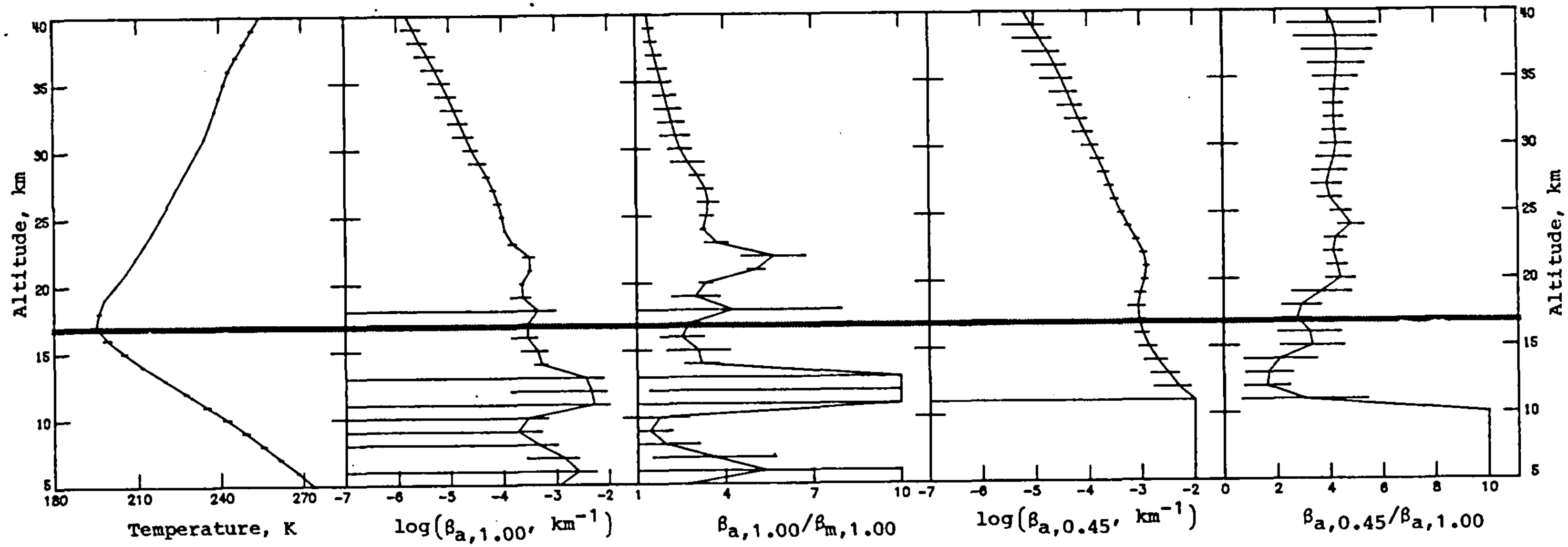


Figure 39. Average extinction and temperature profiles for latitude 5°N, March 23–March 25, 1980. Sunset events; sweep 12.

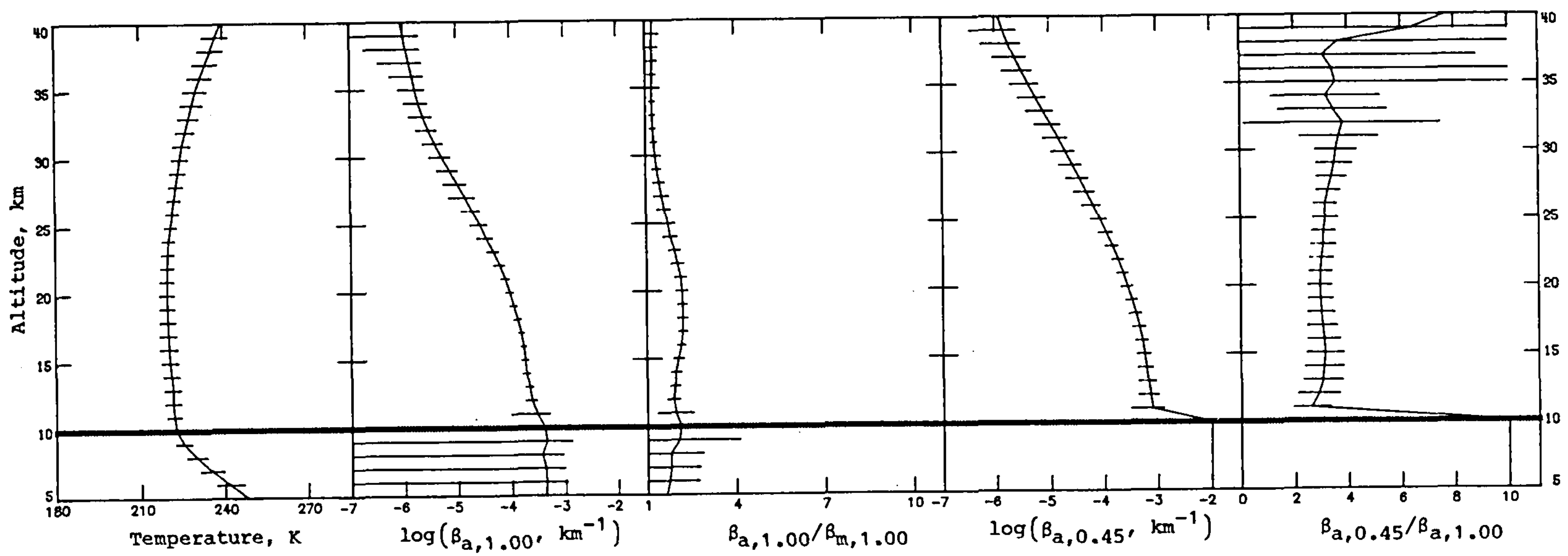


Figure 40. Average extinction and temperature profiles for latitude 55°S, April 9–April 17, 1980. Sunset events; sweep 13.

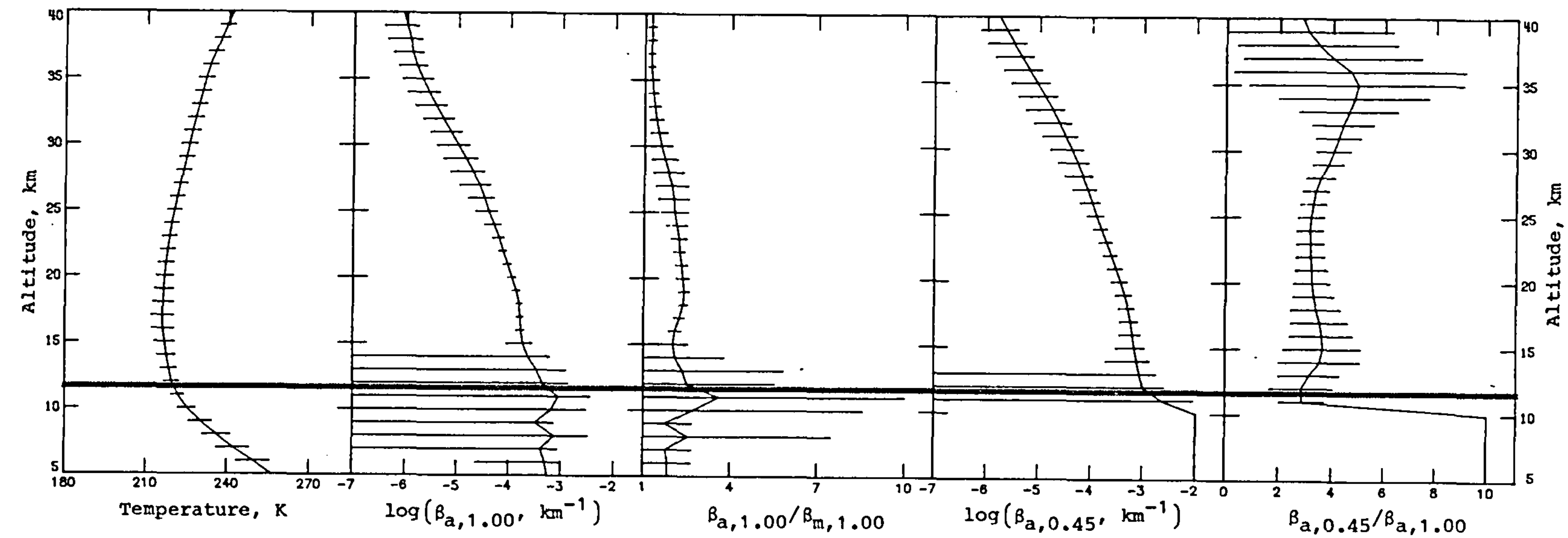


Figure 41. Average extinction and temperature profiles for latitude 45°S, April 17–April 22, 1980. Sunset events; sweep 13.

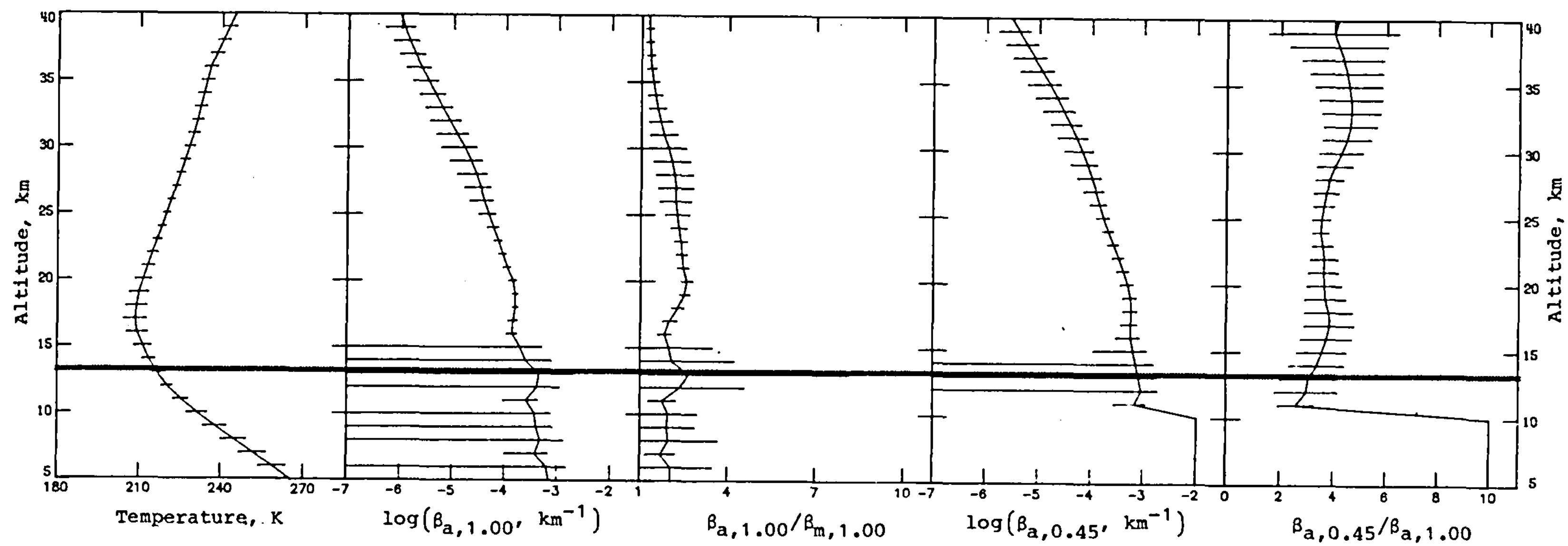


Figure 42. Average extinction and temperature profiles for latitude 35°S, April 22–April 24, 1980. Sunset events; sweep 13.

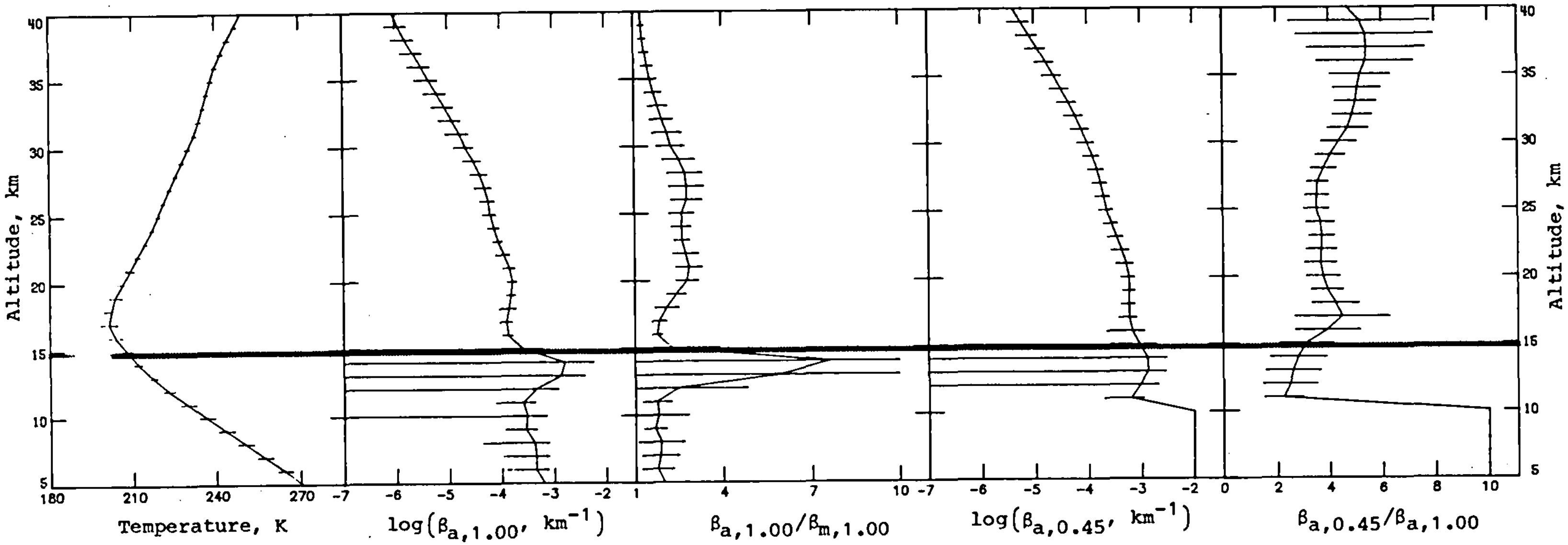


Figure 43. Average extinction and temperature profiles for latitude 25°S, April 24–April 26, 1980. Sunset events; sweep 13.

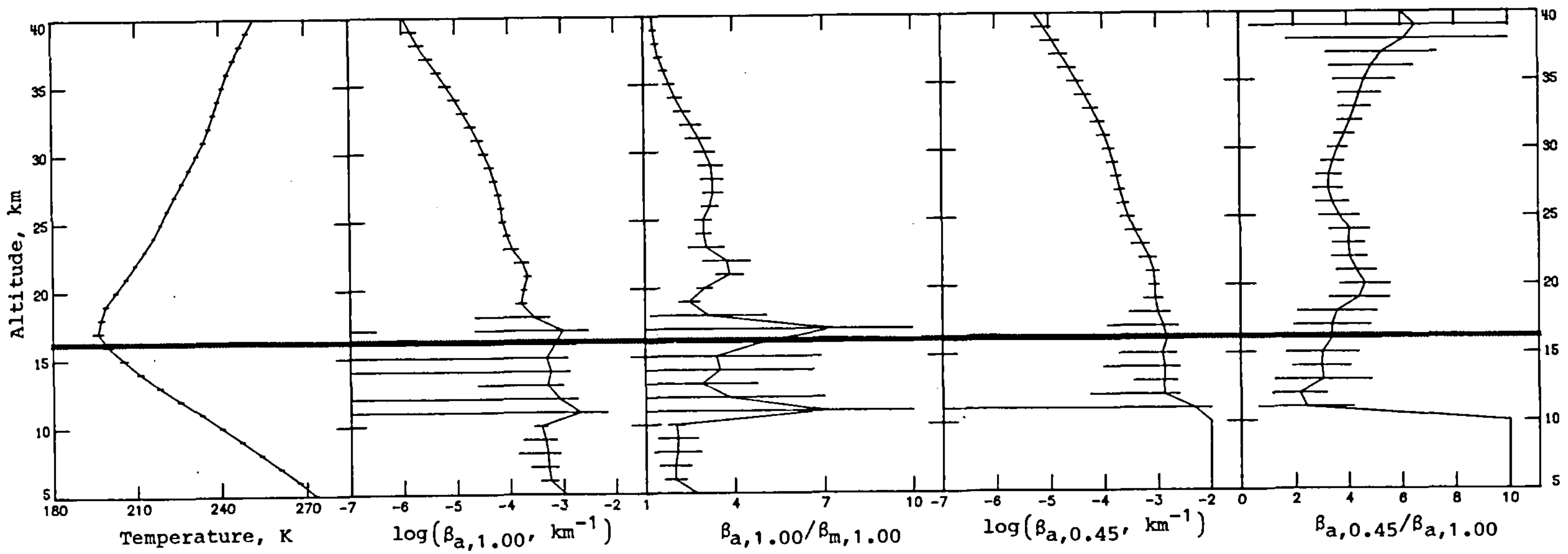


Figure 44. Average extinction and temperature profiles for latitude 15°S, April 26–April 27, 1980. Sunset events; sweep 13.

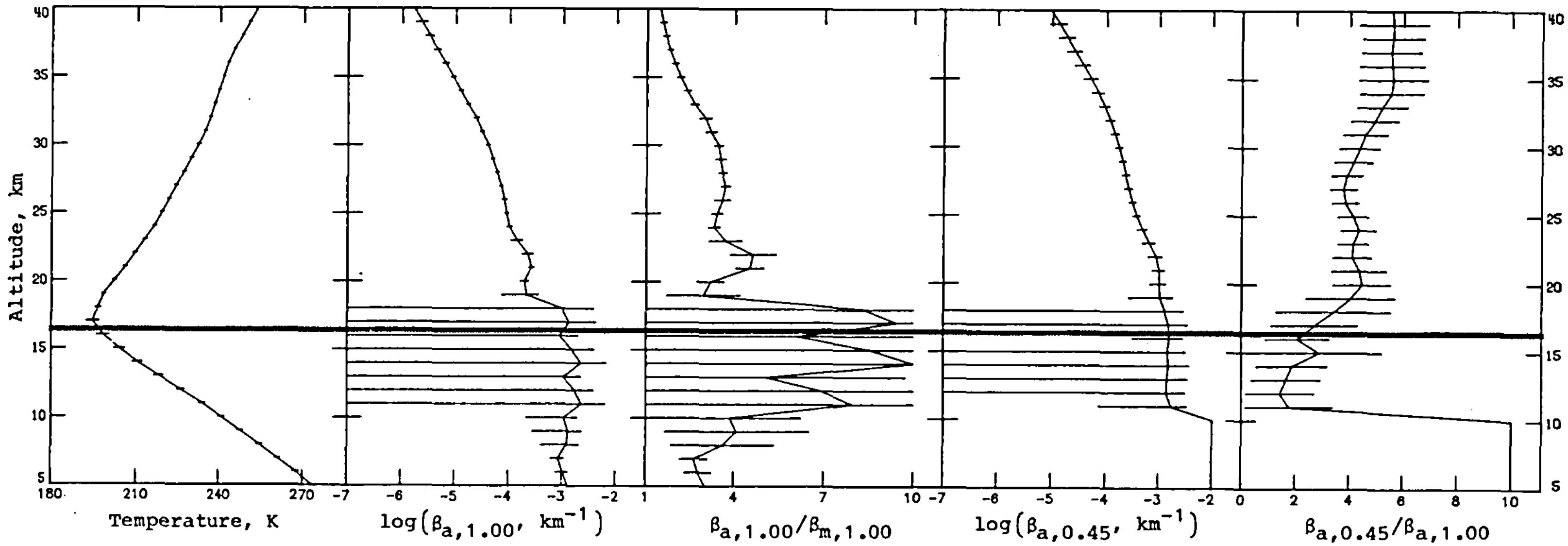


Figure 45. Average extinction and temperature profiles for latitude 5°S, April 27–April 28, 1980. Sunset events; sweep 13.

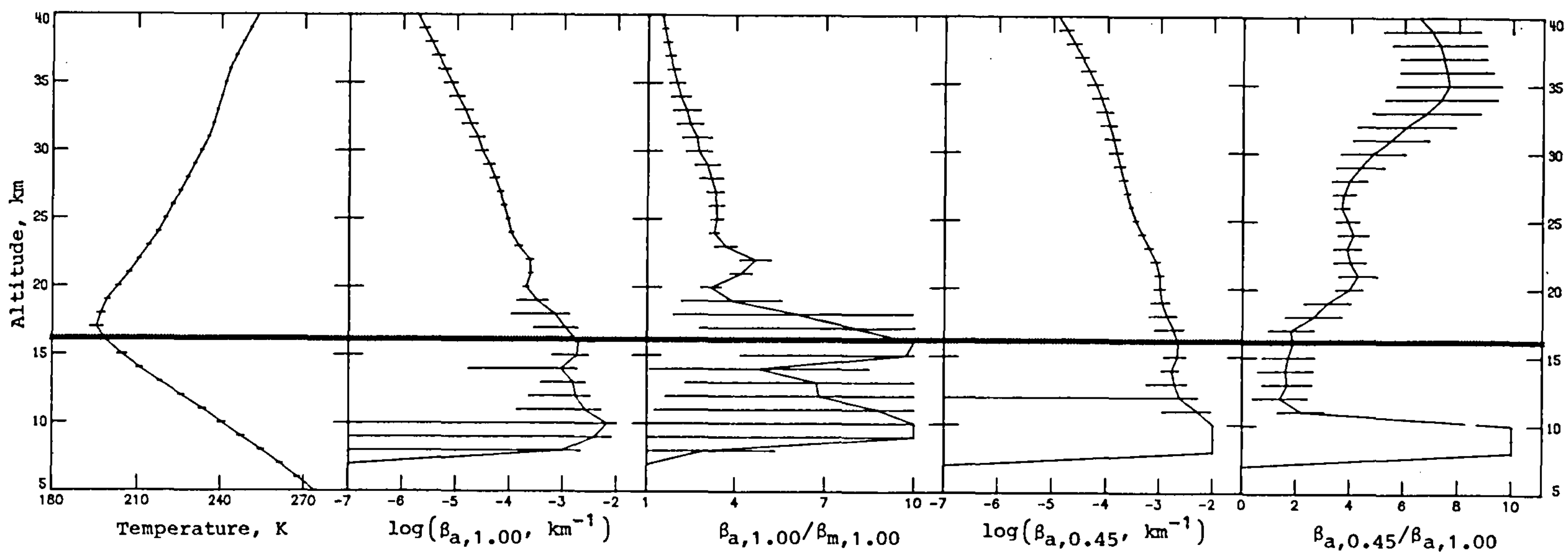


Figure 46. Average extinction and temperature profiles for latitude 5°N, April 28–April 29, 1980. Sunset events; sweep 13.

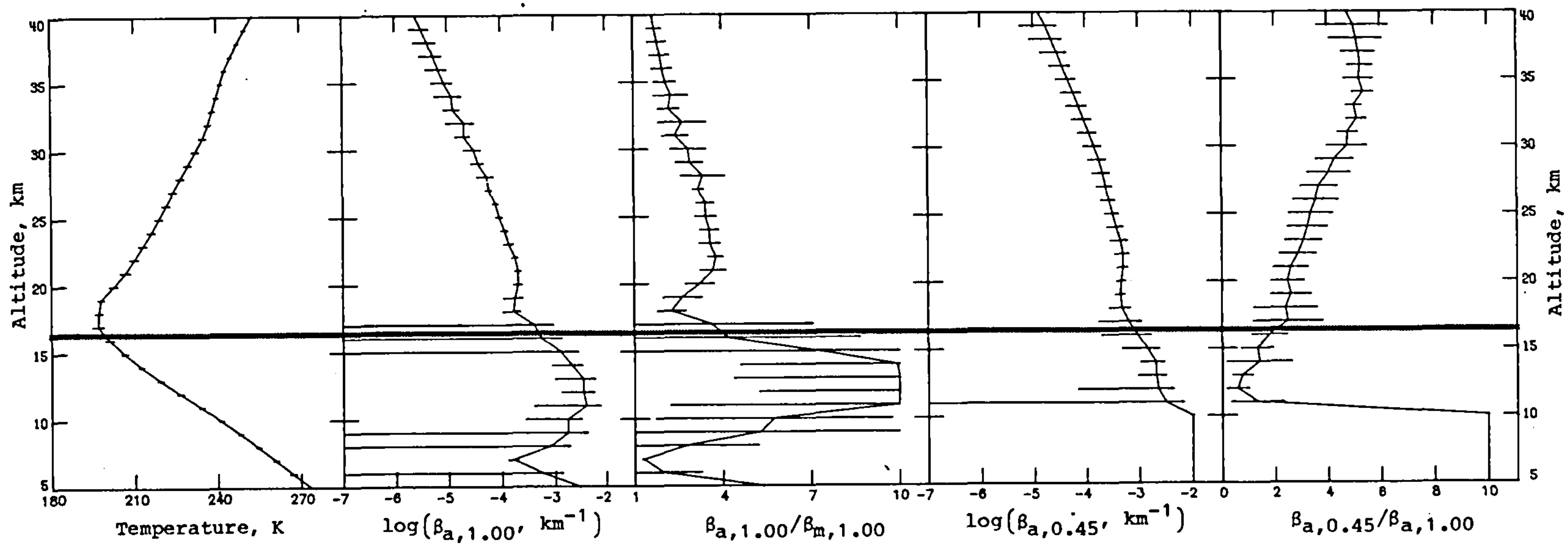


Figure 47. Average extinction and temperature profiles for latitude 15°N, April 29, 1980. Sunset events; sweep 13.

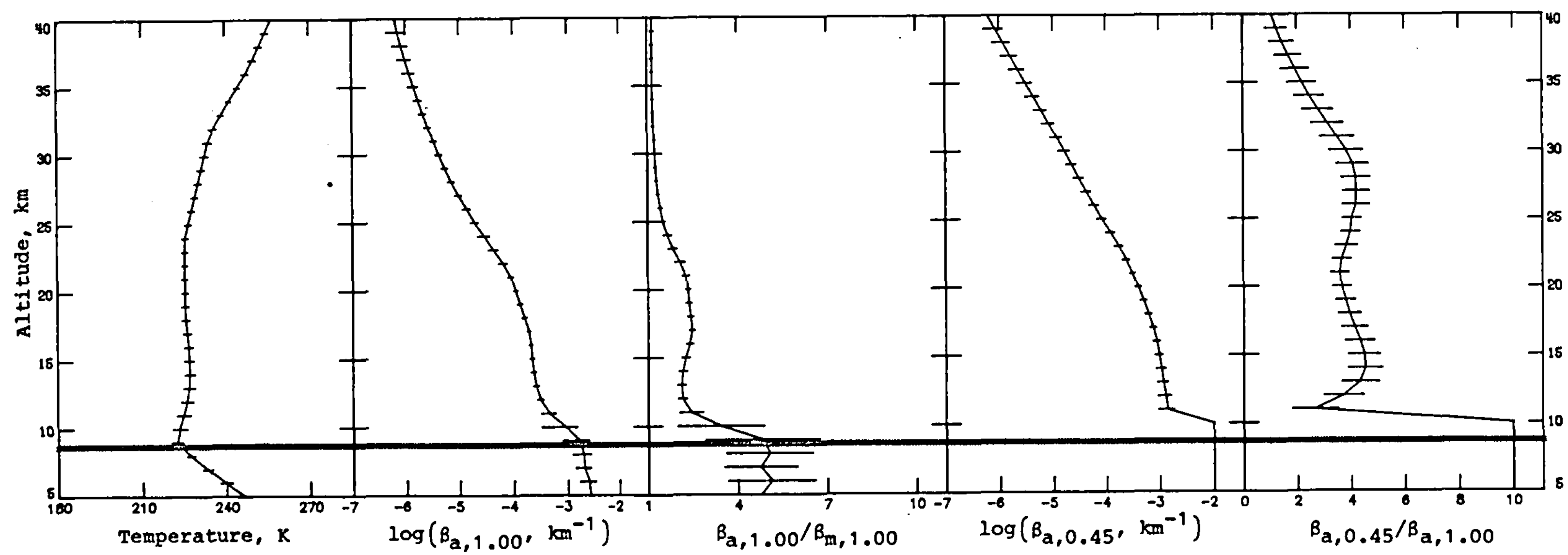


Figure 48. Average extinction and temperature profiles for latitude 75°N, May 9–May 12, 1980. Sunset events; sweep 13.

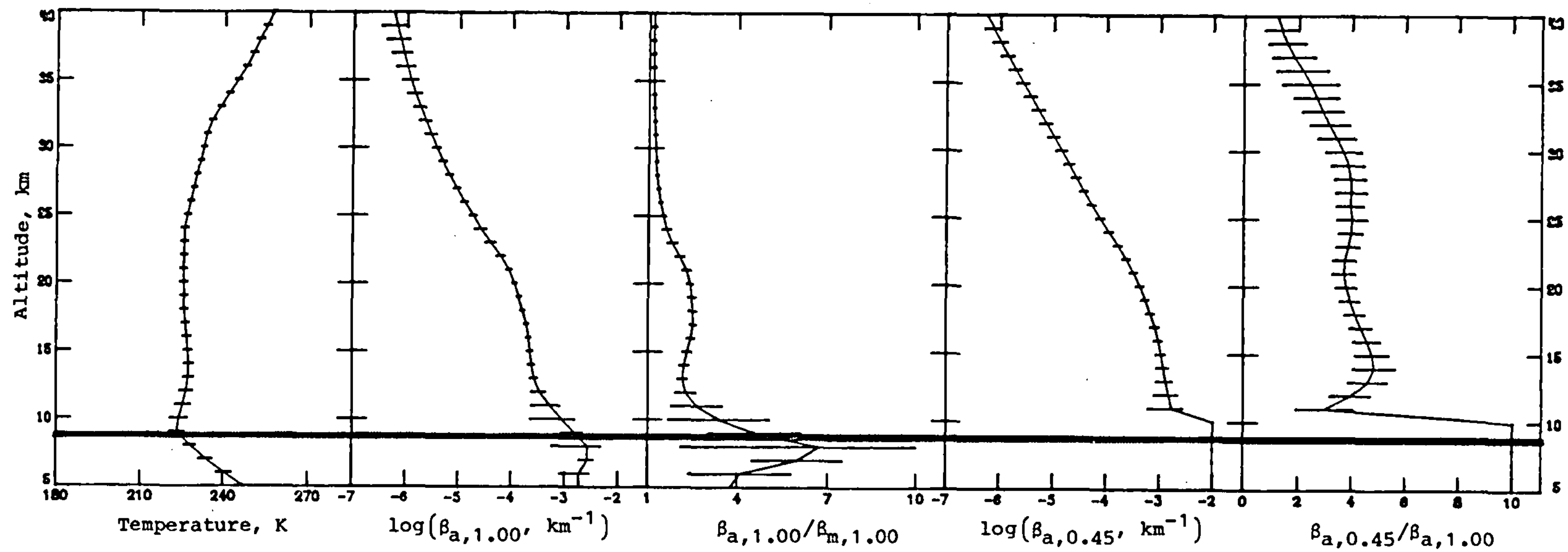


Figure 49. Average extinction and temperature profiles for latitude 75°N, May 12–May 14, 1980. Sunset events; sweep 14.

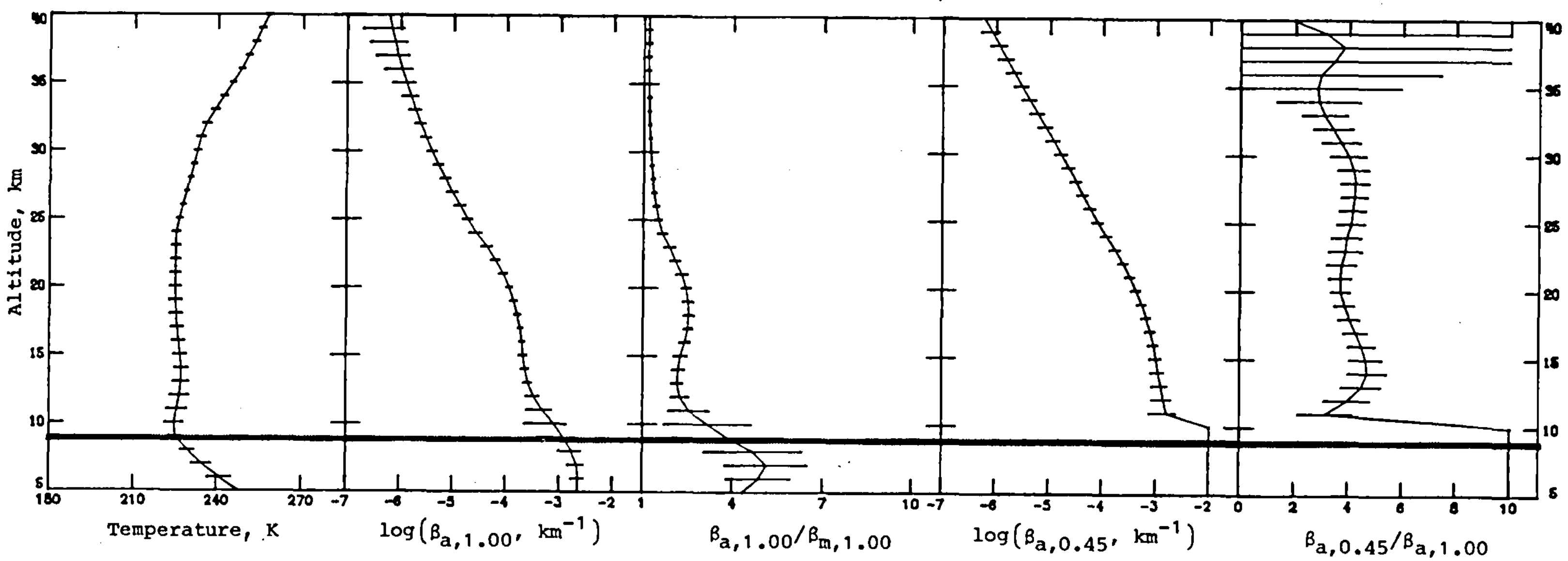


Figure 50. Average extinction and temperature profiles for latitude 65°N, May 14–May 19, 1980. Sunset events; sweep 14.

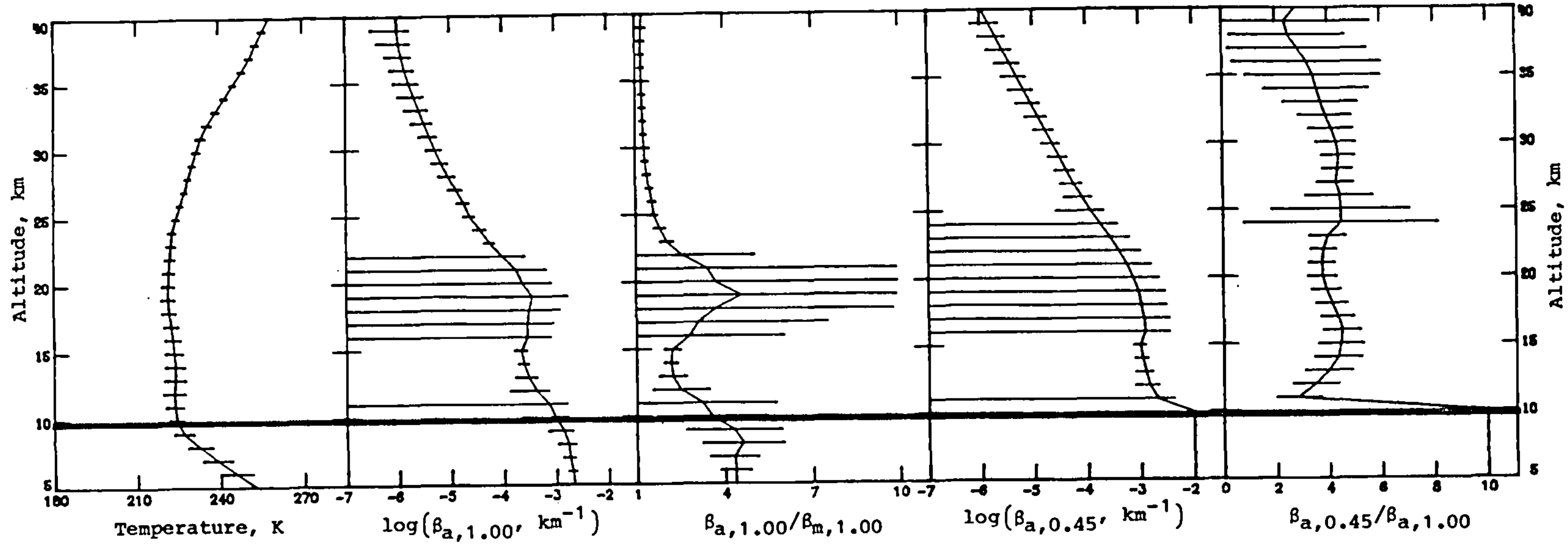


Figure 51. Average extinction and temperature profiles for latitude 55°N, May 19–May 23, 1980. Sunset events; sweep 14.

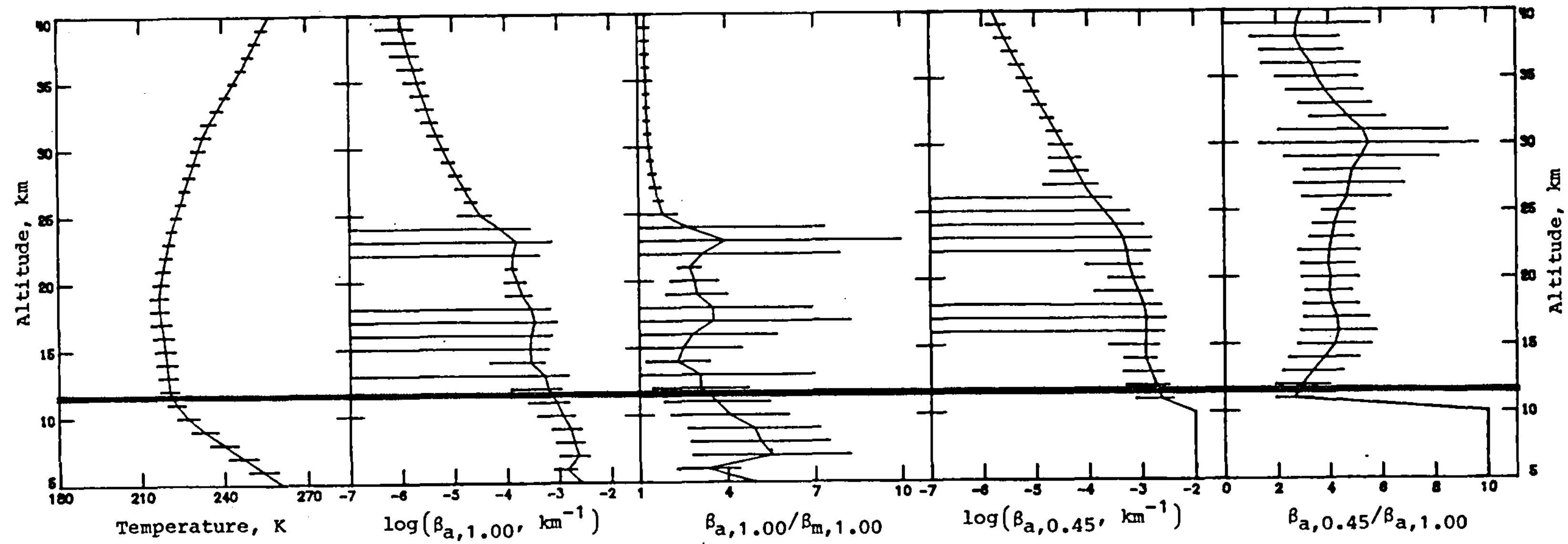


Figure 52. Average extinction and temperature profiles for latitude 45°N, May 23–May 26, 1980. Sunset events; sweep 14.

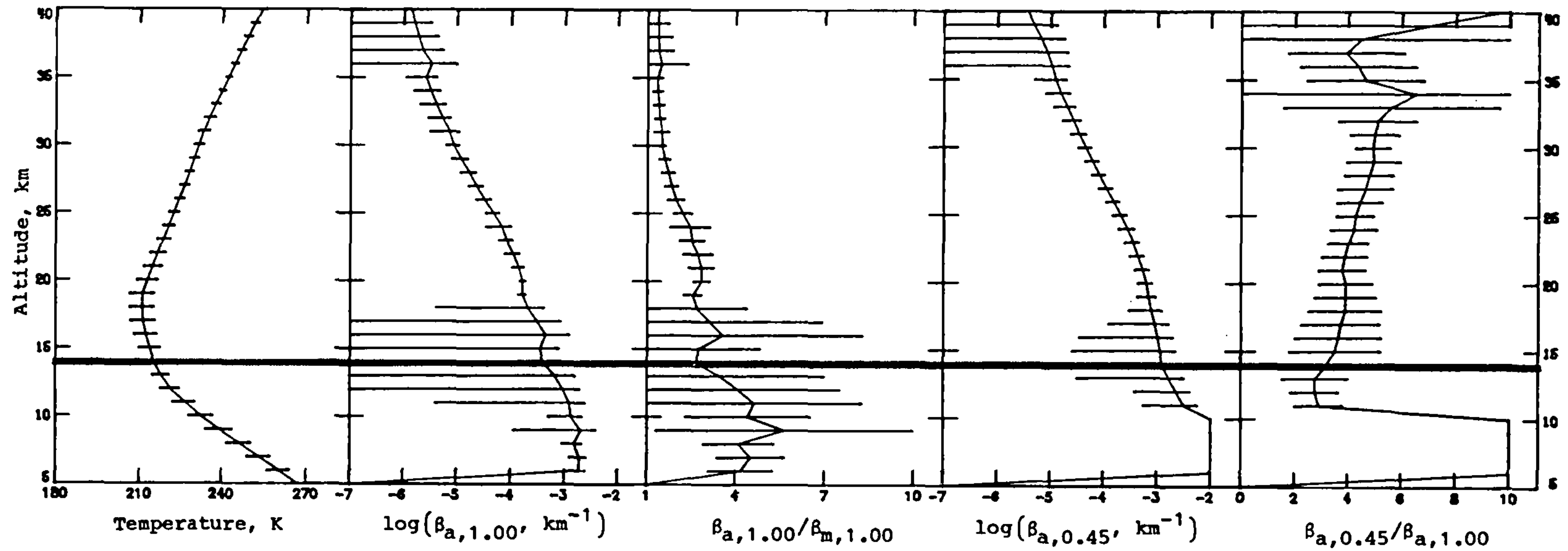


Figure 53. Average extinction and temperature profiles for latitude 35°N, May 26–May 29, 1980. Sunset events; sweep 14.

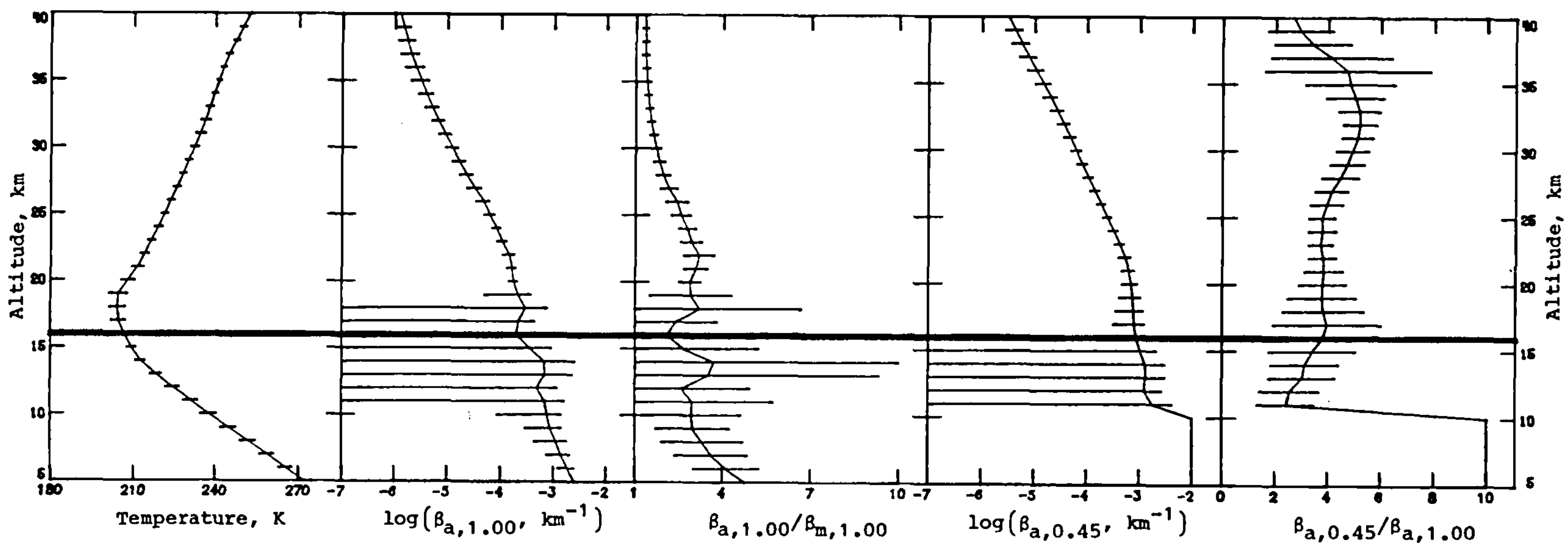


Figure 54. Average extinction and temperature profiles for latitude 25°N, May 29–May 31, 1980. Sunset events; sweep 14.

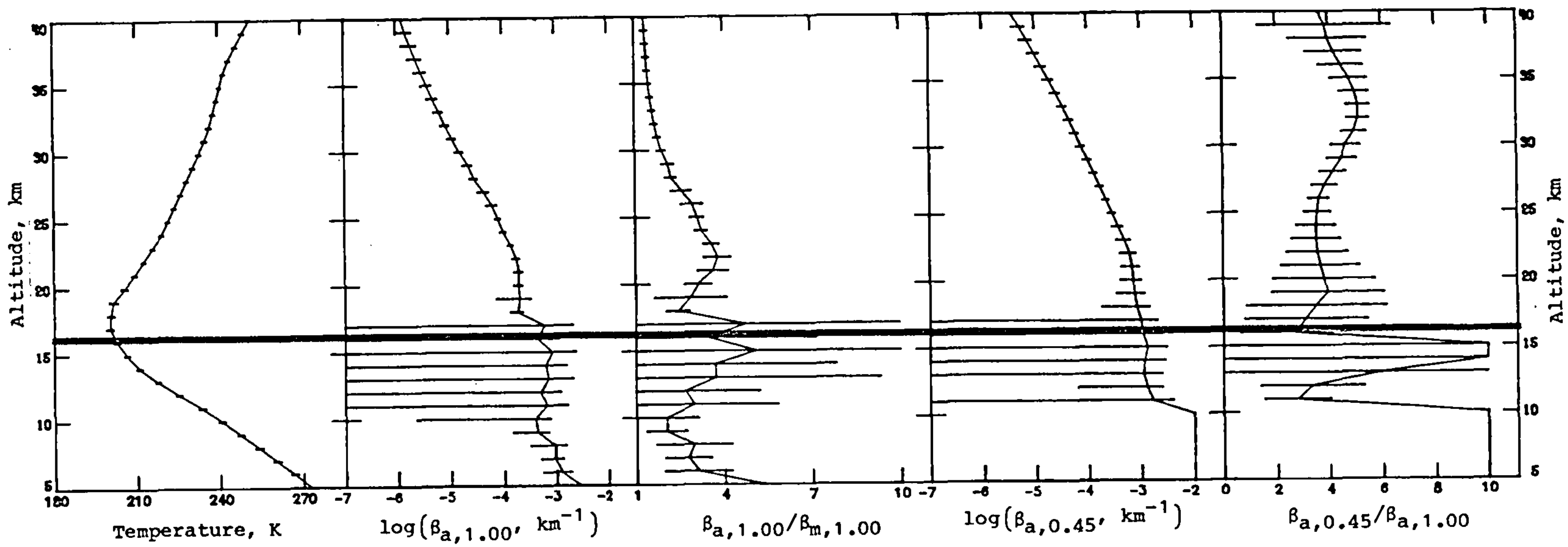


Figure 55. Average extinction and temperature profiles for latitude 15°N, May 31–June 2, 1980. Sunset events; sweep 14.

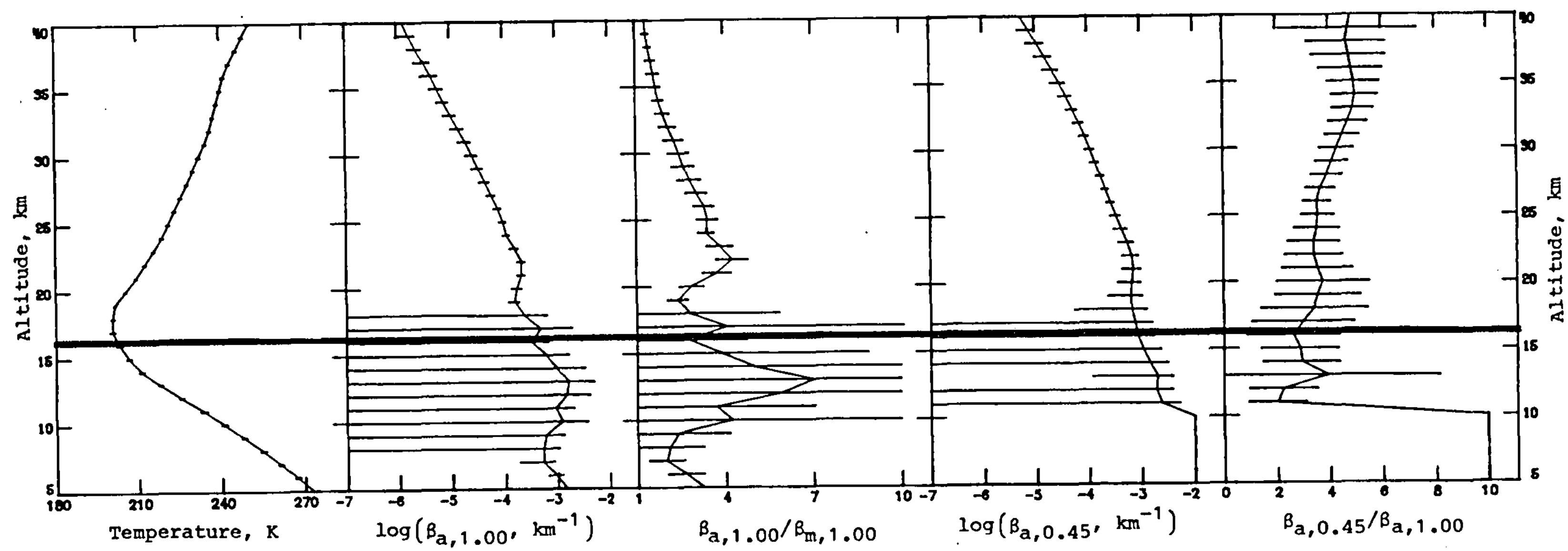


Figure 56. Average extinction and temperature profiles for latitude 5°N, June 2–June 4, 1980. Sunset events; sweep 14.

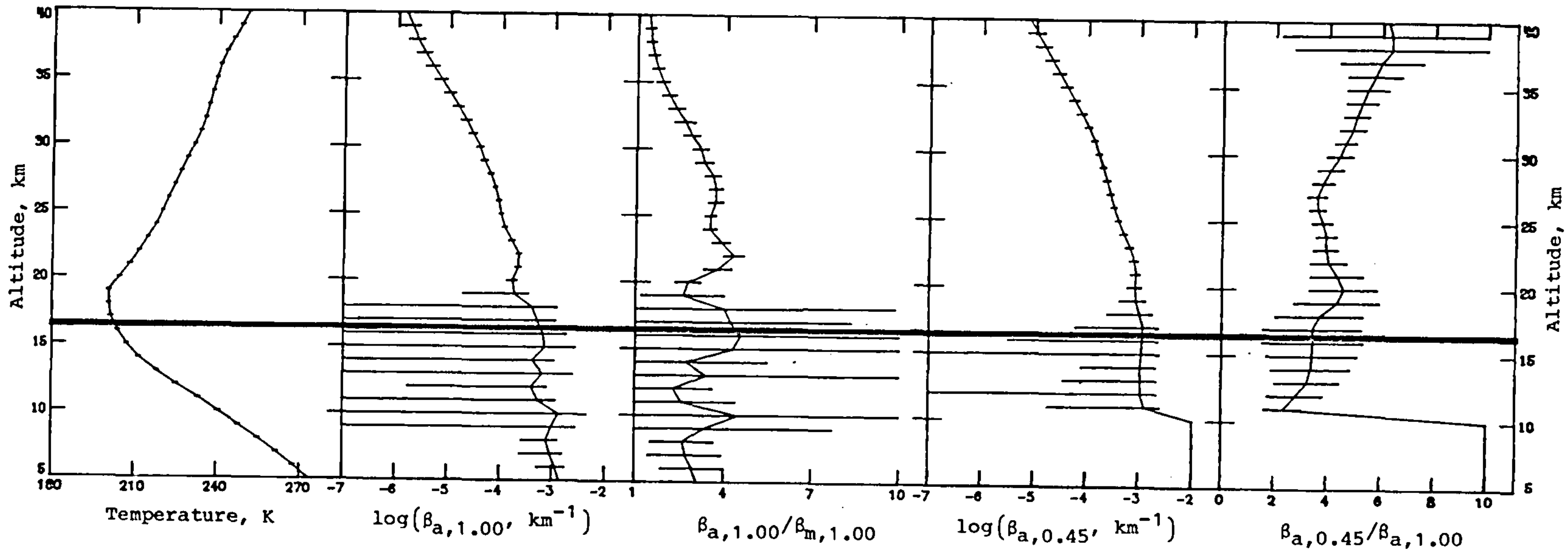


Figure 57. Average extinction and temperature profiles for latitude 5°S, June 4–June 6, 1980. Sunset events; sweep 14.

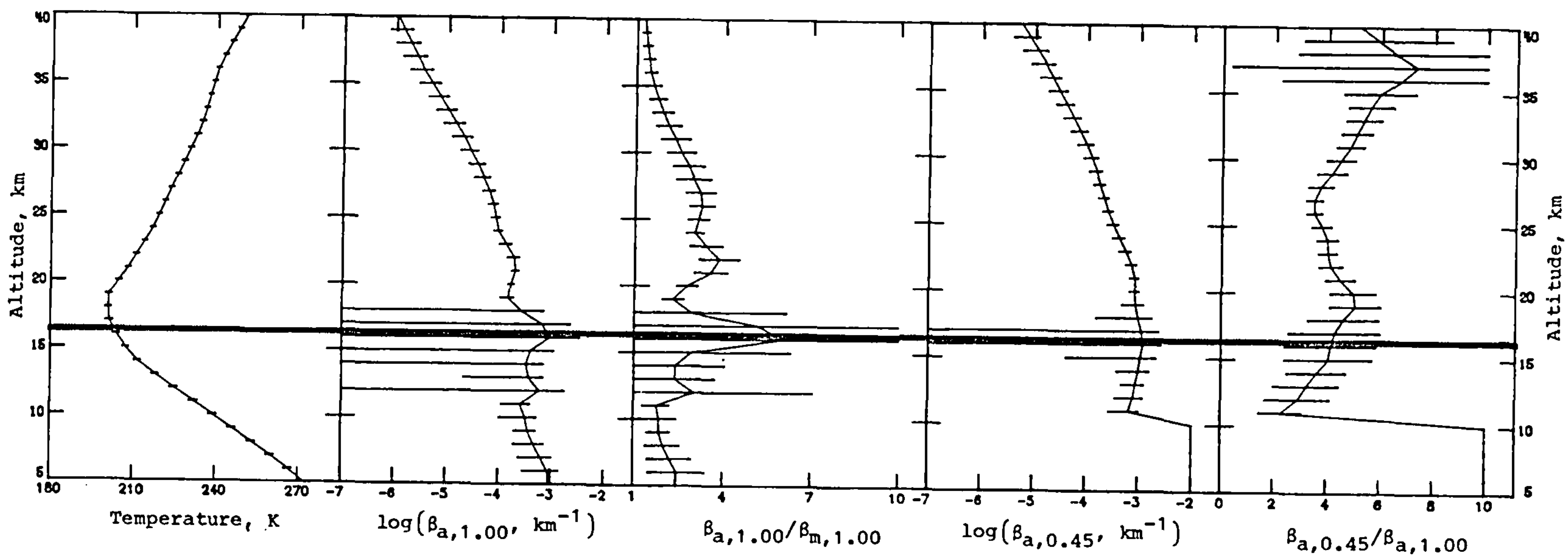


Figure 58. Average extinction and temperature profiles for latitude 15°S, June 6–June 8, 1980. Sunset events; sweep 14.

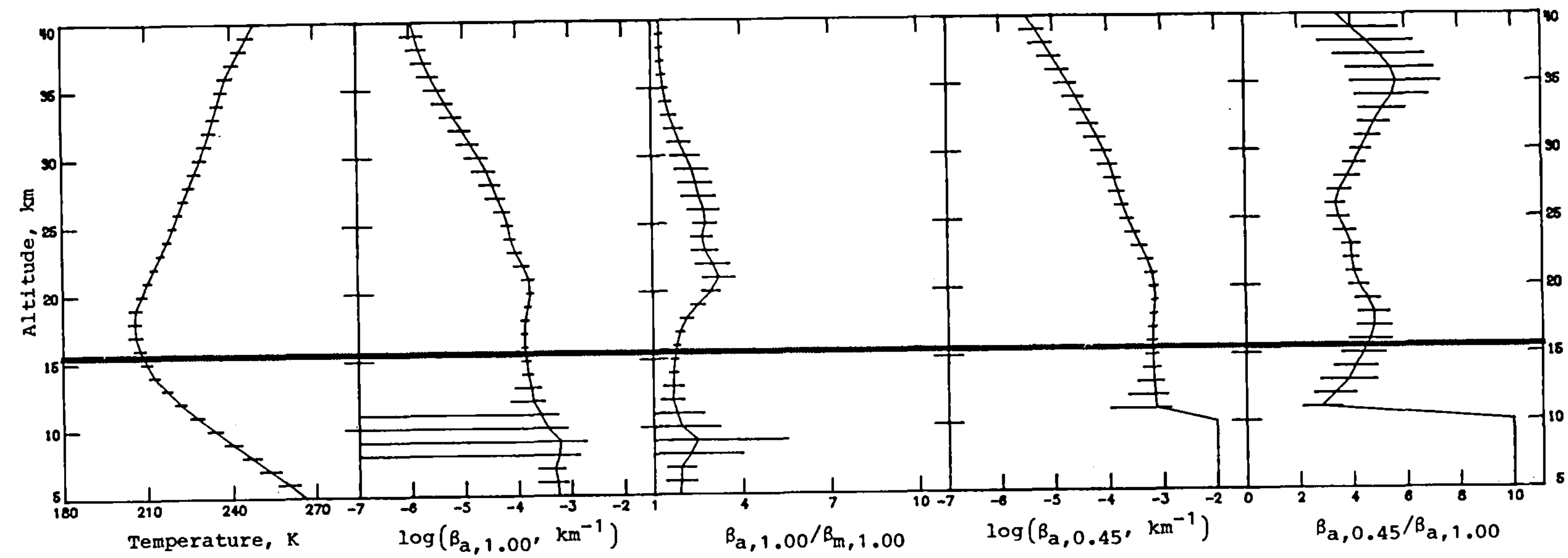


Figure 59. Average extinction and temperature profiles for latitude 25°S, June 8–June 11, 1980. Sunset events; sweep 14.

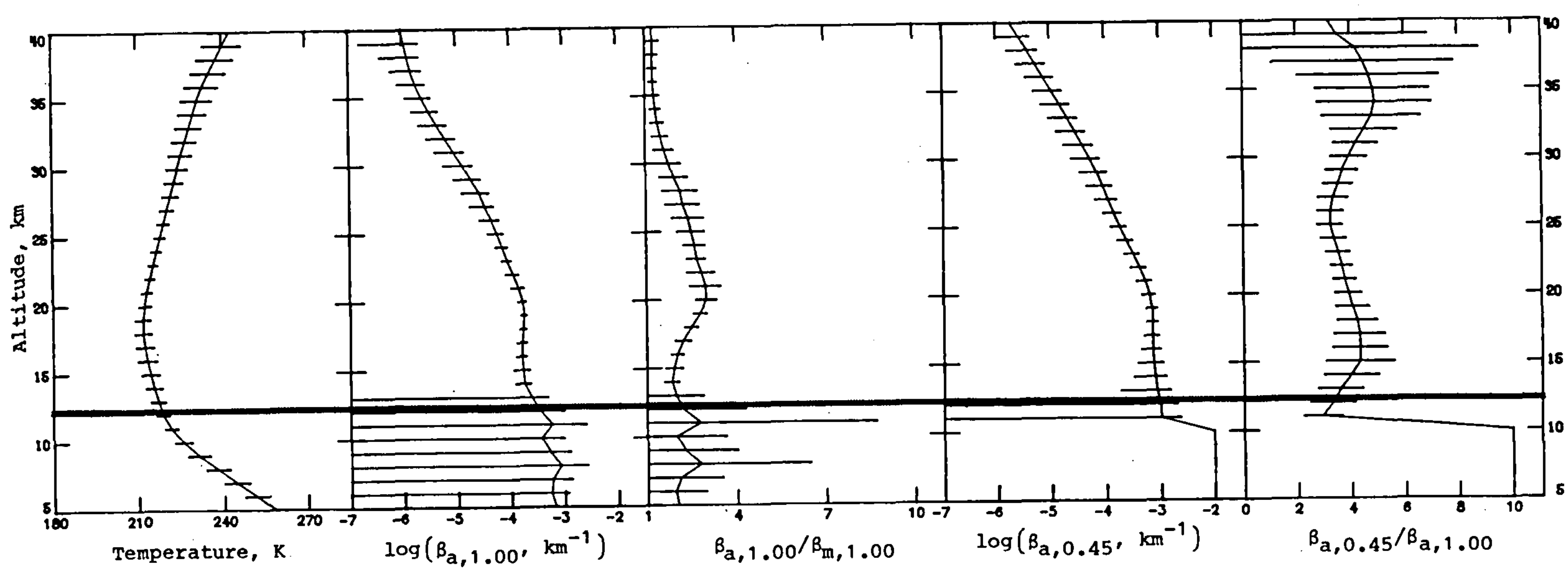


Figure 60. Average extinction and temperature profiles for latitude 35°S, June 11–June 15, 1980. Sunset events; sweep 14.

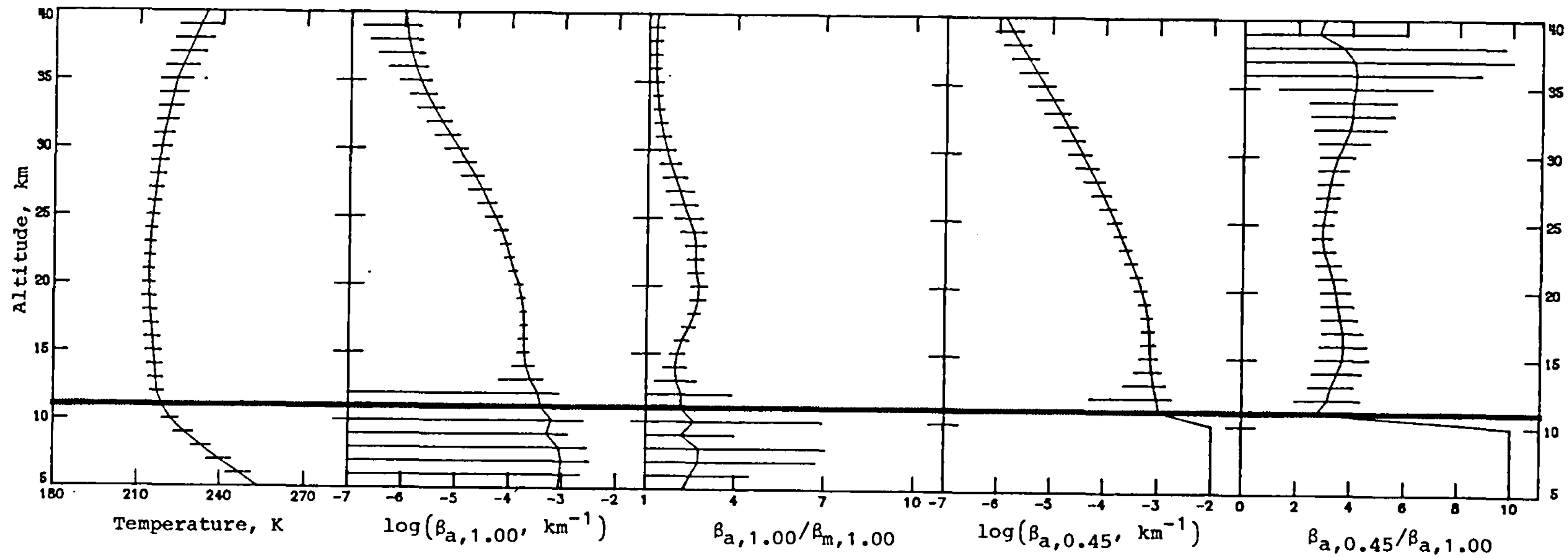


Figure 61. Average extinction and temperature profiles for latitude 45°S, June 15–June 24, 1980. Sunset events; sweep 14.

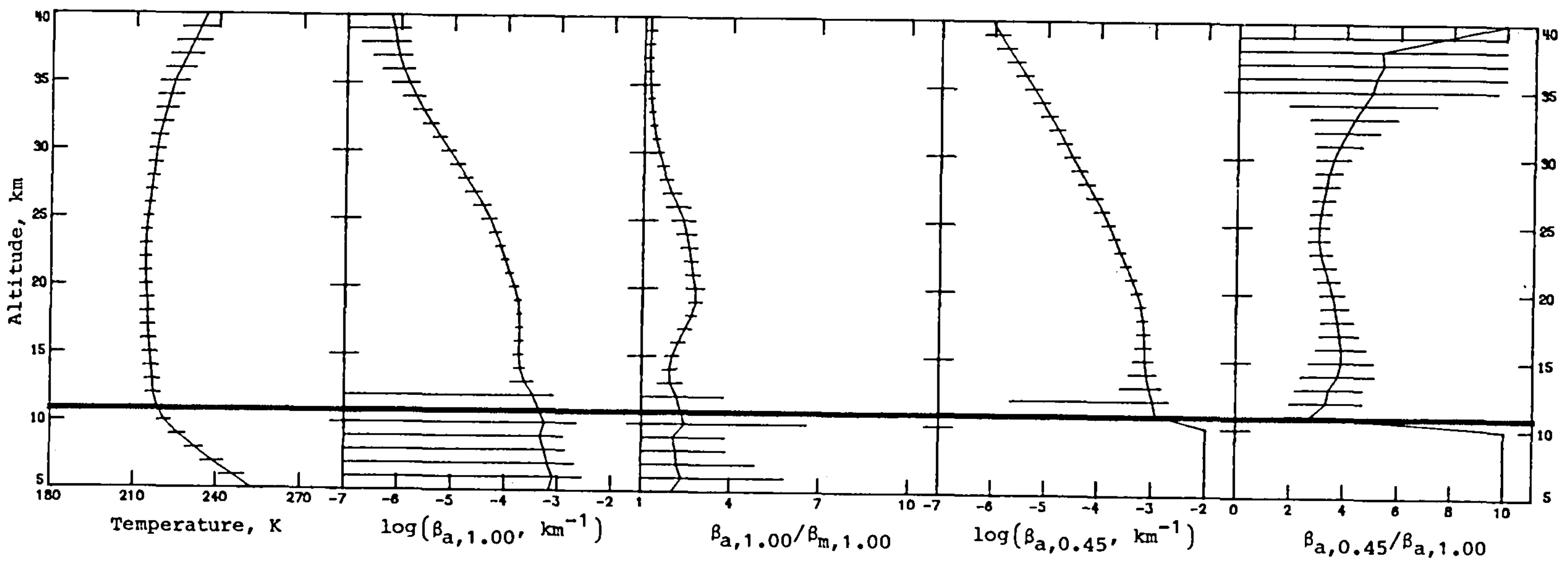


Figure 62. Average extinction and temperature profiles for latitude 45°S, June 24–June 29, 1980. Sunset events; sweep 15.

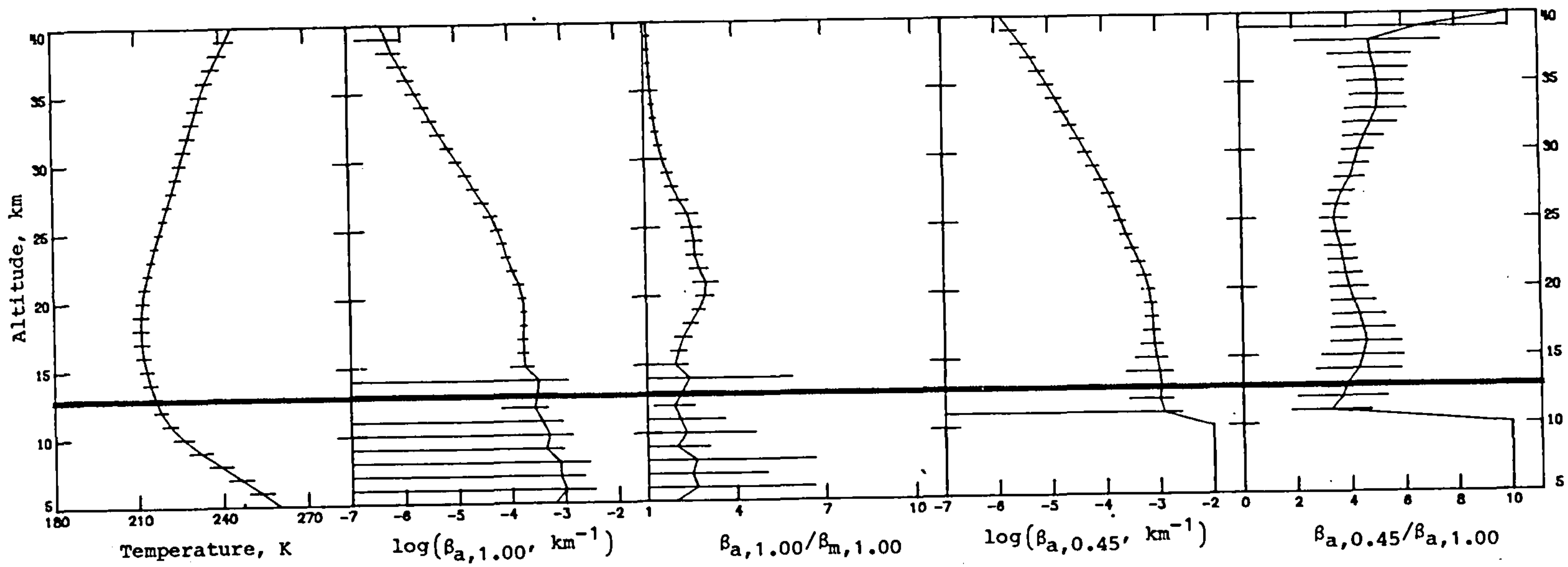


Figure 63. Average extinction and temperature profiles for latitude 35°S, June 29–July 3, 1980. Sunset events; sweep 15.

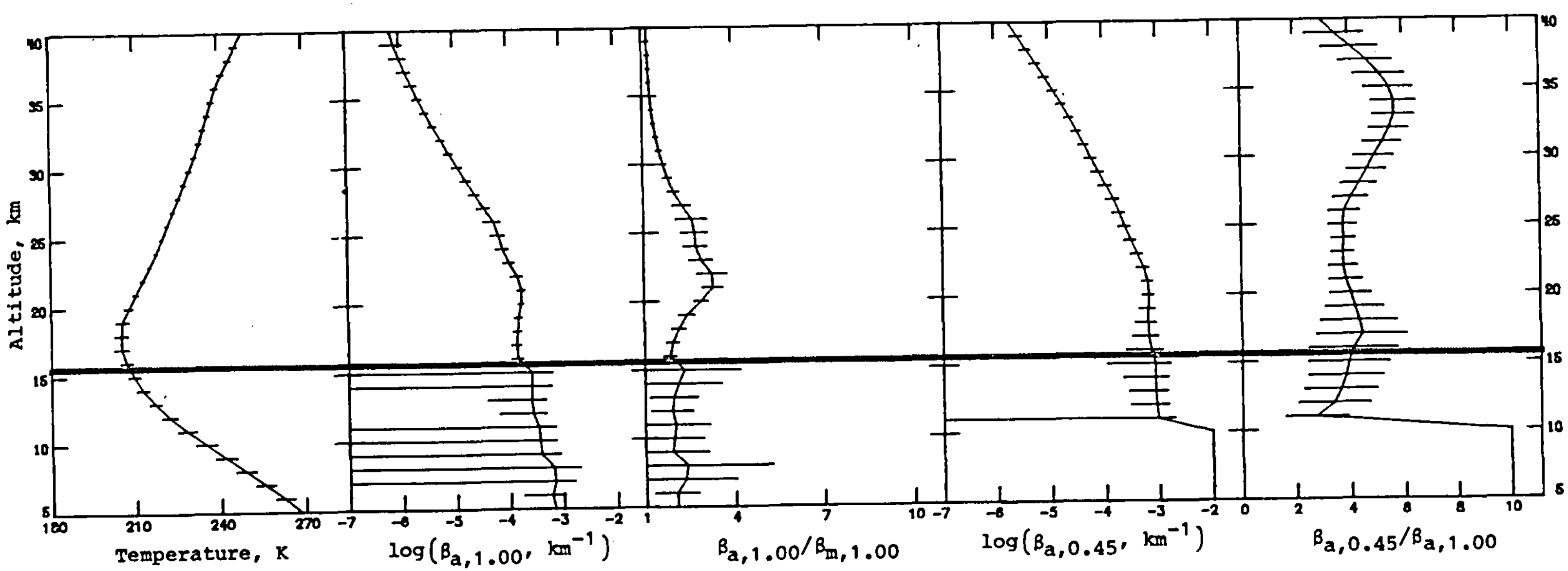


Figure 64. Average extinction and temperature profiles for latitude 25°S, July 3–July 4, 1980. Sunset events; sweep 15.

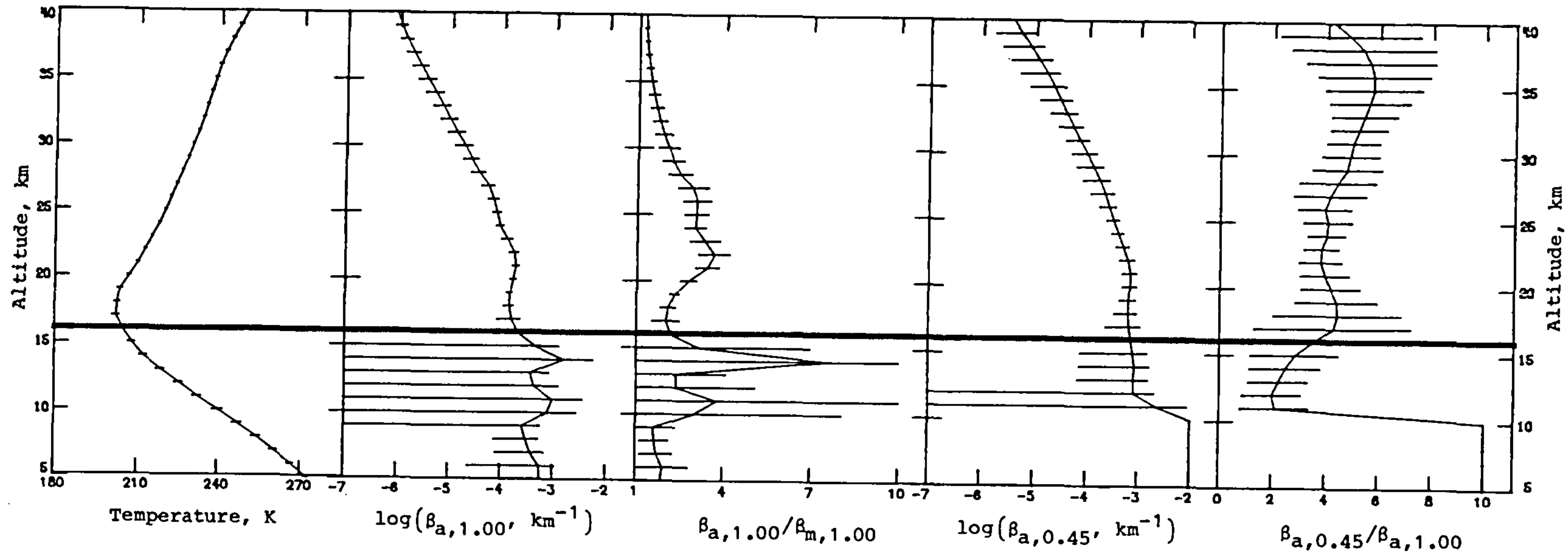


Figure 65. Average extinction and temperature profiles for latitude 15°S, July 4–July 5, 1980. Sunset events; sweep 15.

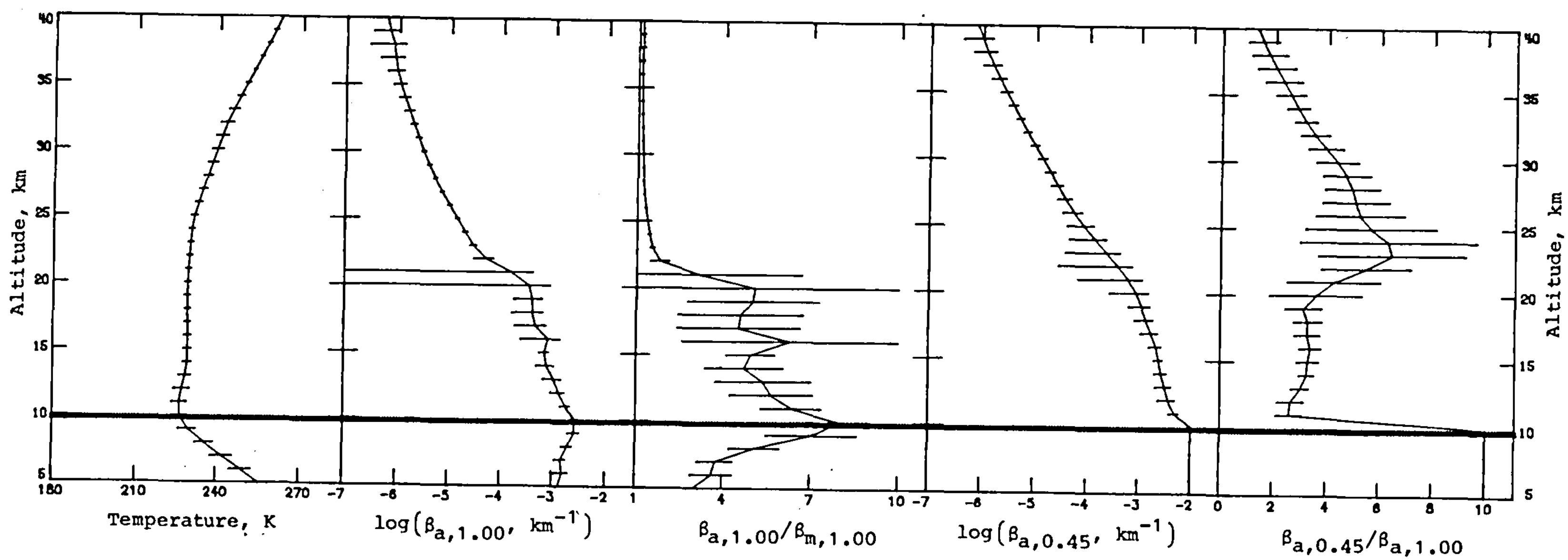


Figure 66. Average extinction and temperature profiles for latitude 65°N, July 19–July 20, 1980. Sunset events; sweep 15.

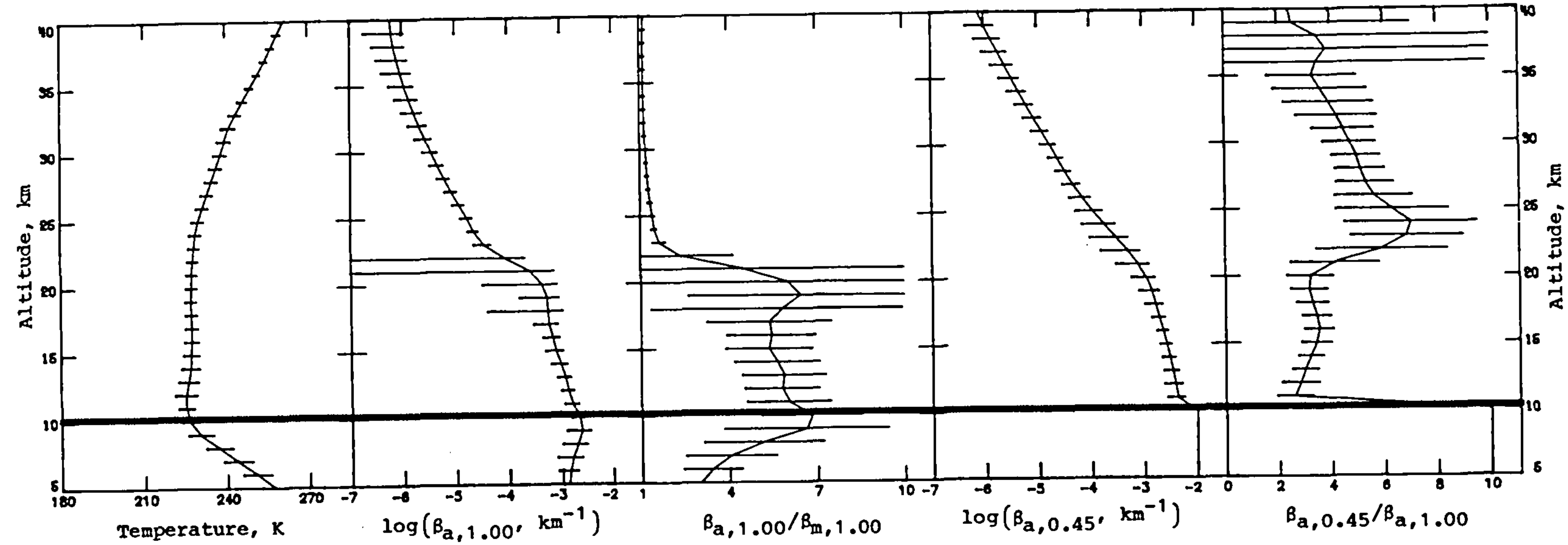


Figure 67. Average extinction and temperature profiles for latitude 65°N, July 20–July 27, 1980. Sunset events; sweep 16.

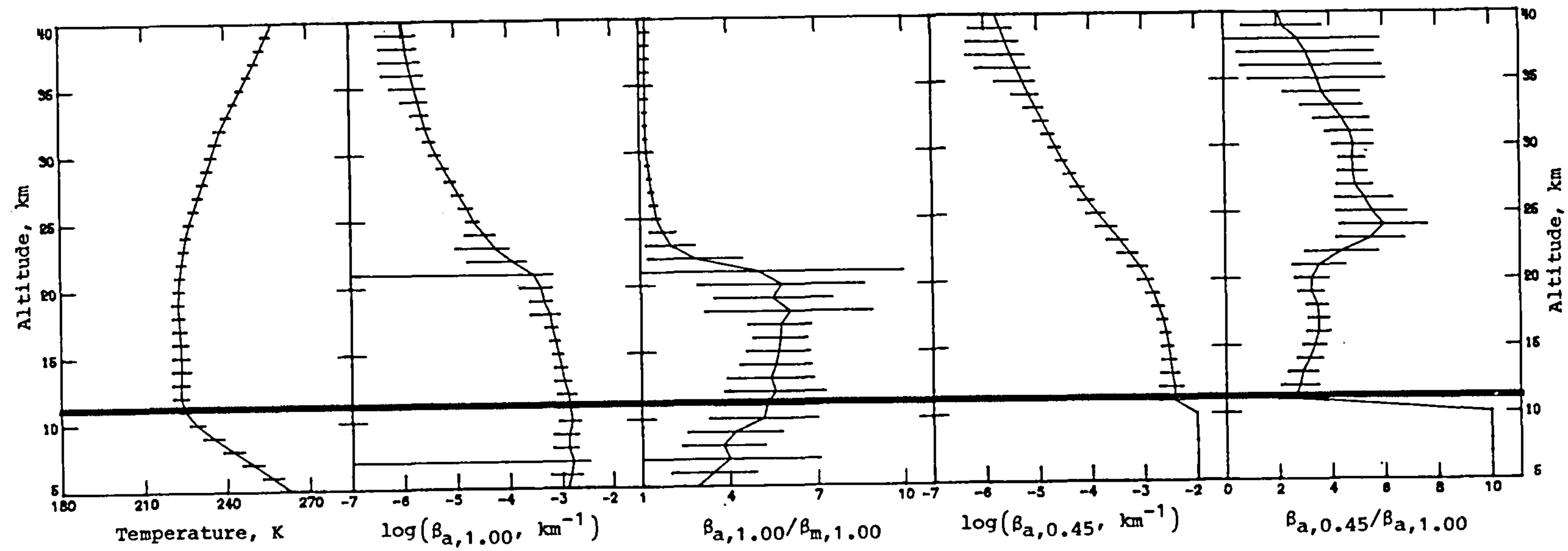


Figure 68. Average extinction and temperature profiles for latitude 55°N, July 27–July 31, 1980. Sunset events; sweep 16.

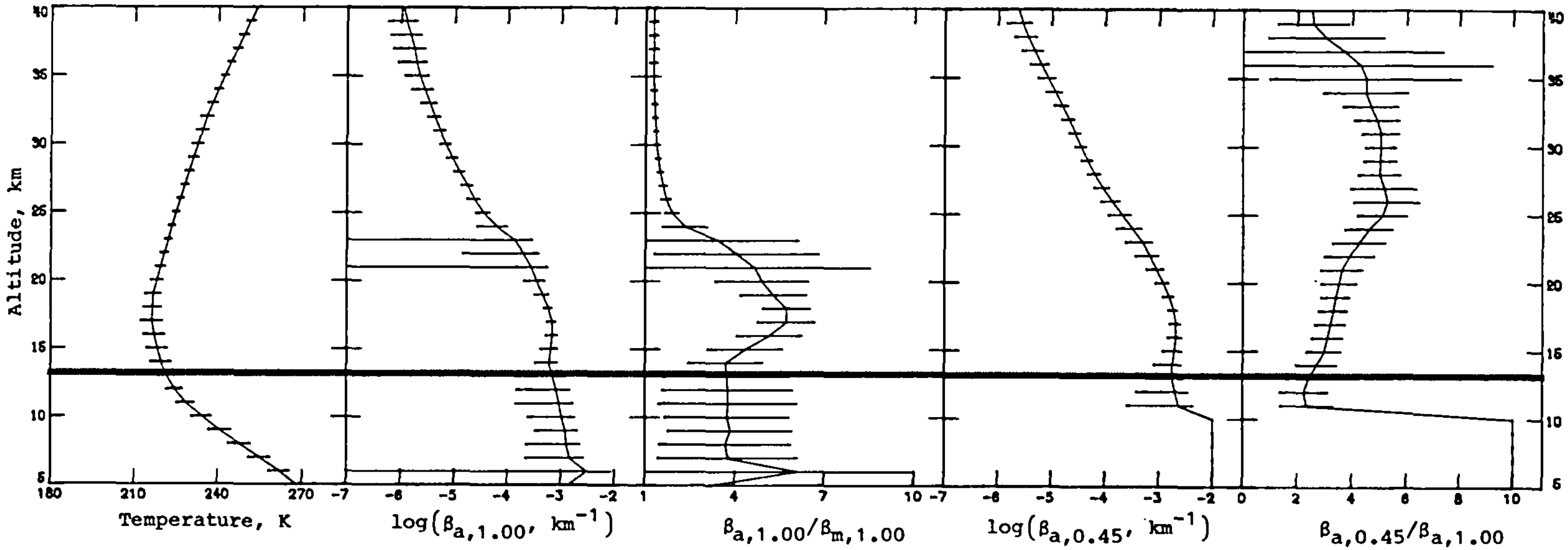


Figure 69. Average extinction and temperature profiles for latitude 45°N, July 31–August 3, 1980. Sunset events; sweep 16.

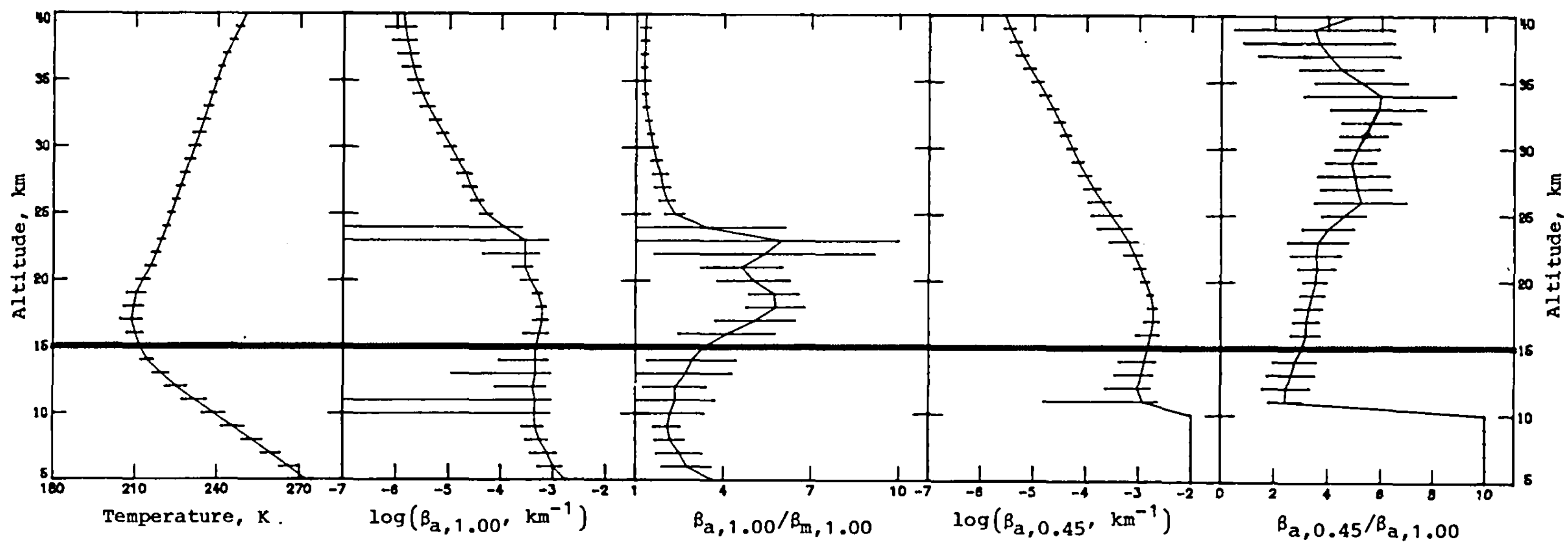


Figure 70. Average extinction and temperature profiles for latitude 35°N, August 3–August 6, 1980. Sunset events; sweep 16.

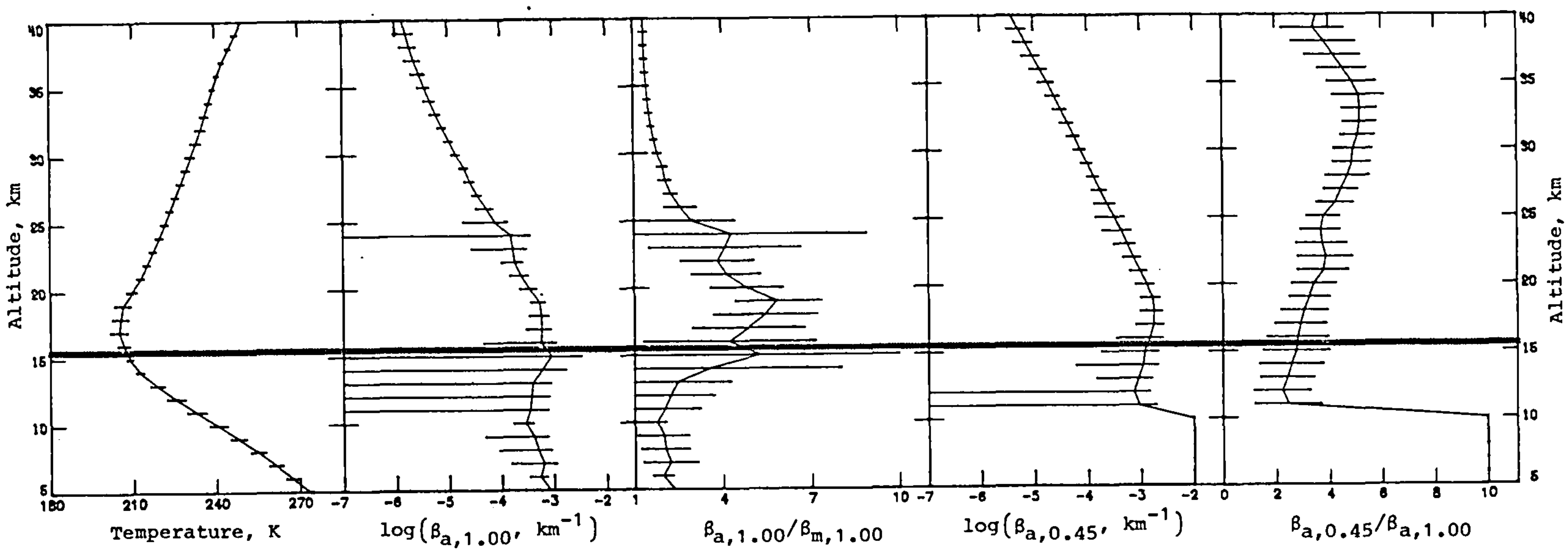


Figure 71. Average extinction and temperature profiles for latitude 25°N, August 6–August 8, 1980. Sunset events; sweep 16.

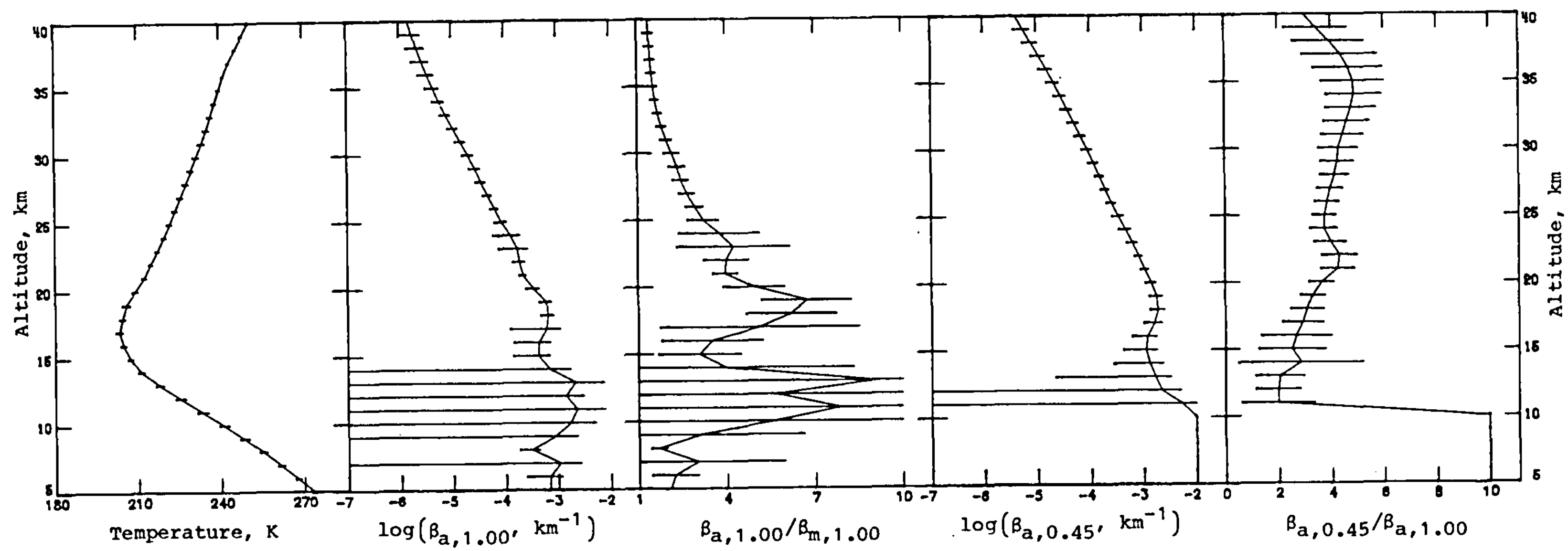


Figure 72. Average extinction and temperature profiles for latitude 15°N, August 8–August 10, 1980. Sunset events; sweep 16.

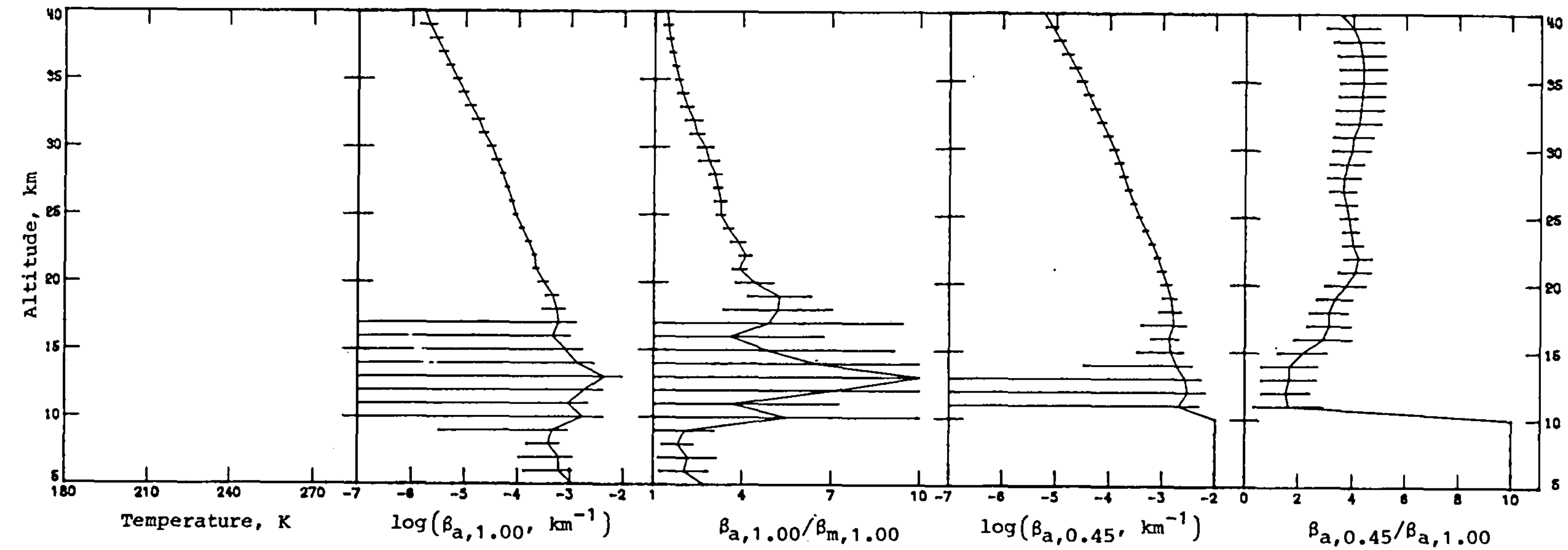


Figure 73. Average extinction and temperature profiles for latitude 5°N, August 10–August 11, 1980. Sunset events; sweep 16.

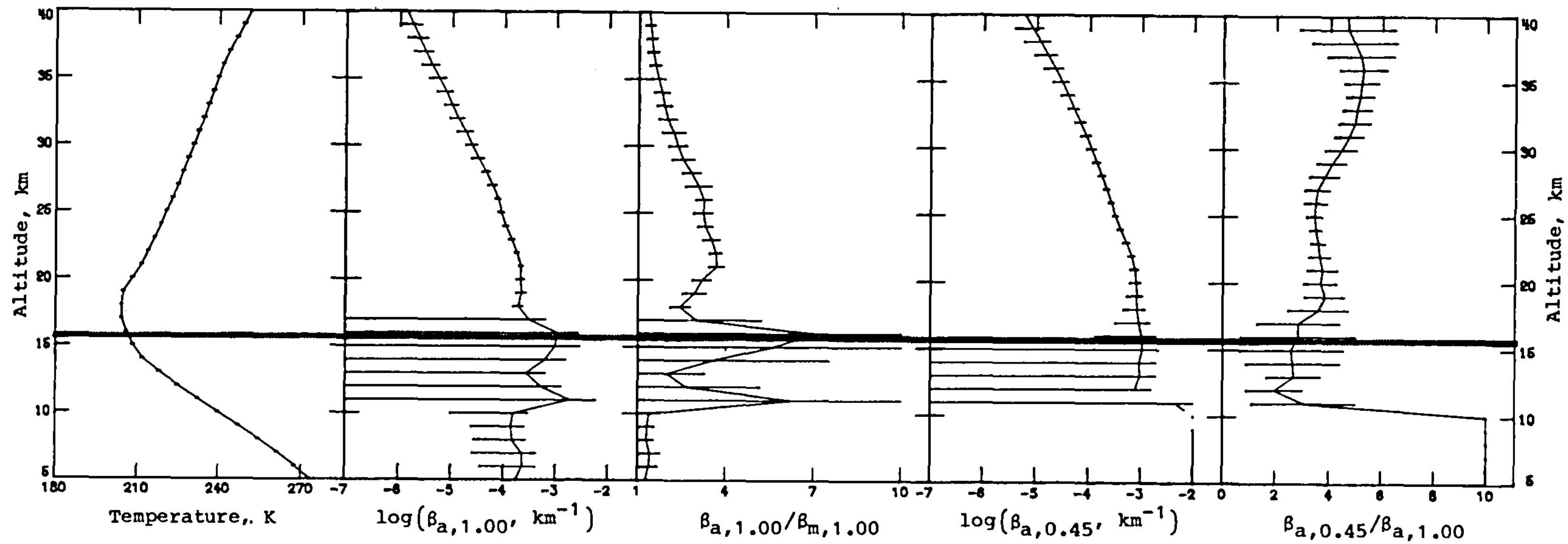


Figure 74. Average extinction and temperature profiles for latitude 5°S, August 13, 1980. Sunset events; sweep 16.

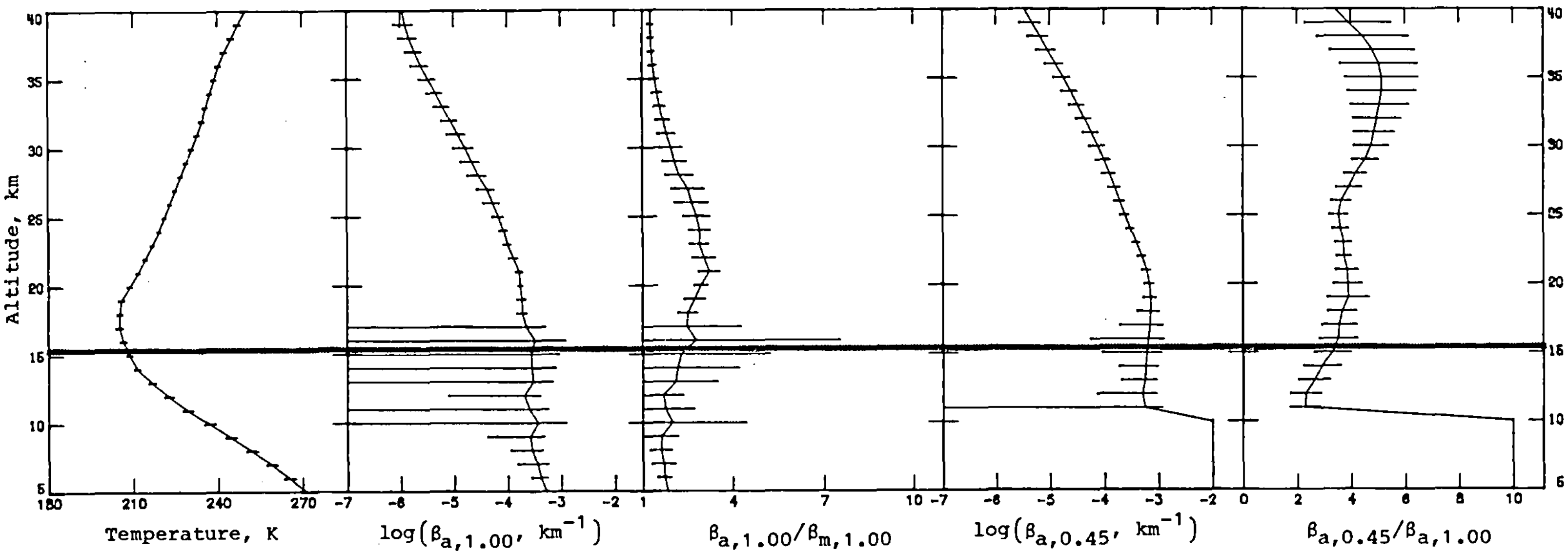


Figure 75. Average extinction and temperature profiles for latitude 15°S, August 13–August 15, 1980. Sunset events; sweep 16.

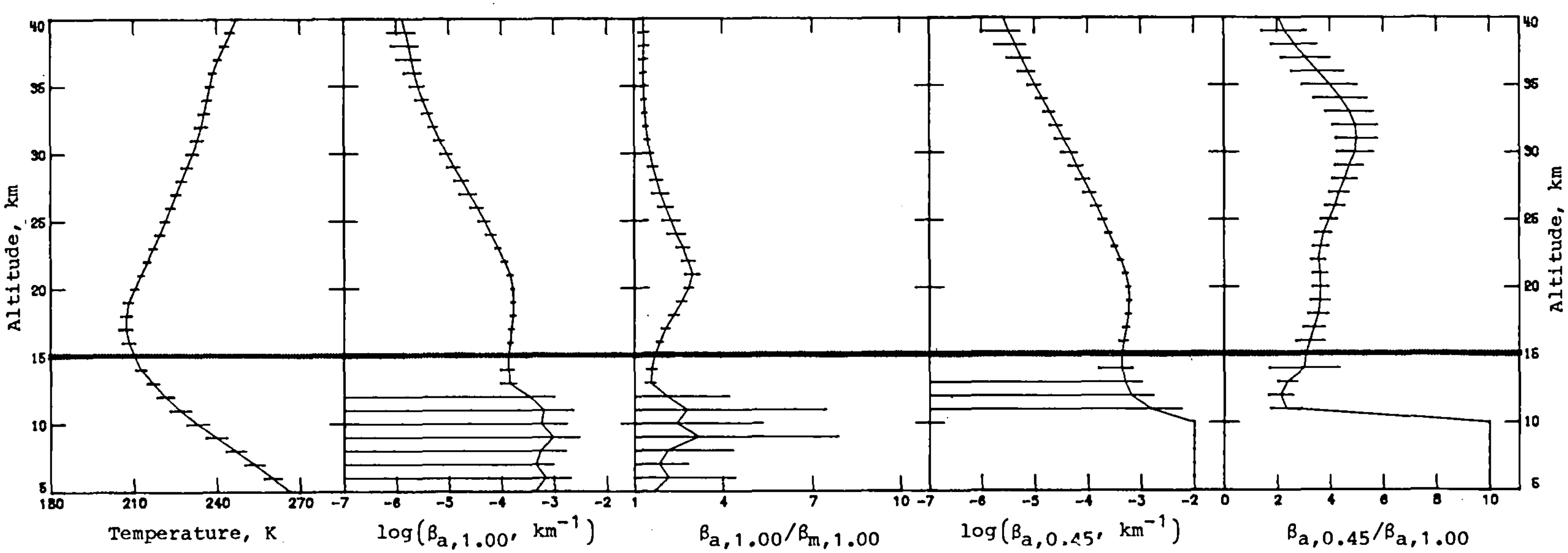


Figure 76. Average extinction and temperature profiles for latitude 25°S, August 15–August 16, 1980. Sunset events; sweep 16.

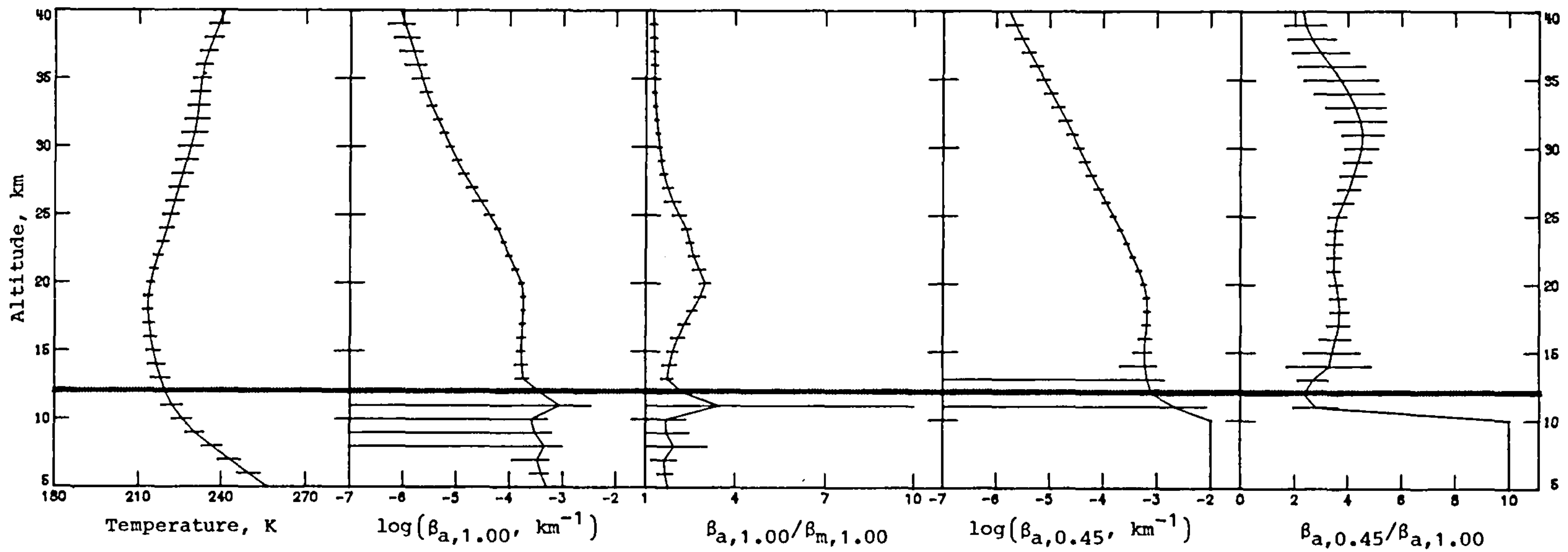


Figure 77. Average extinction and temperature profiles for latitude 35°S, August 17–August 19, 1980. Sunset events; sweep 16.

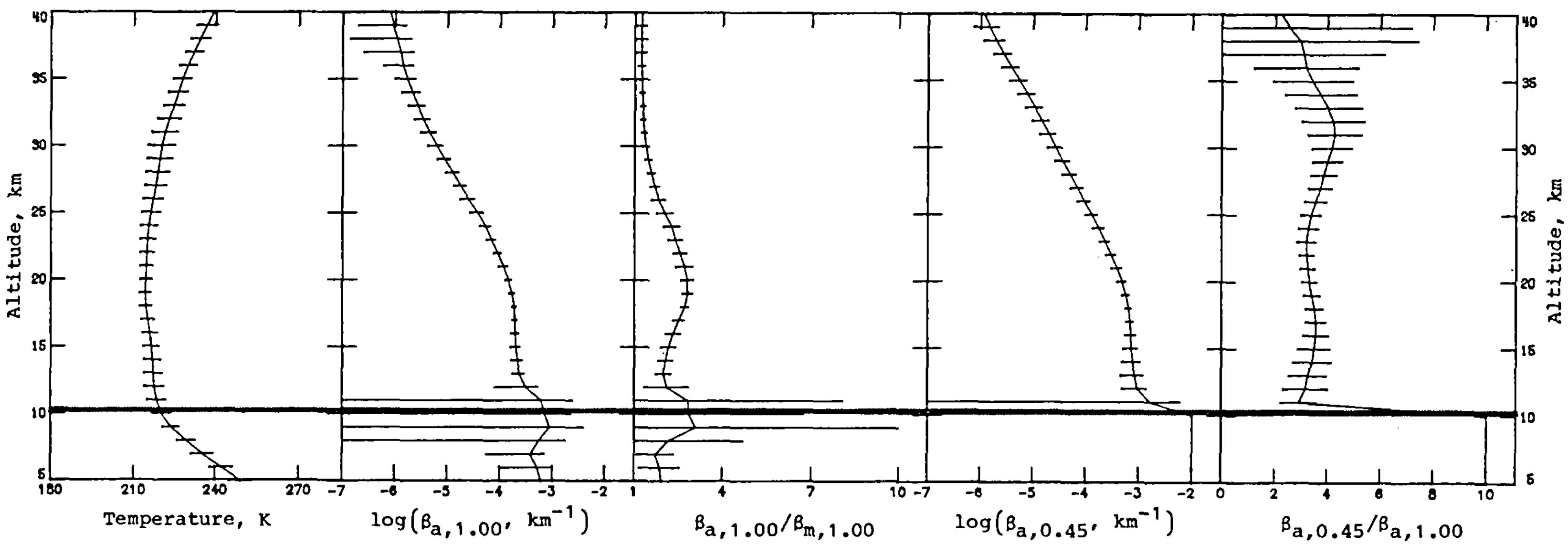


Figure 78. Average extinction and temperature profiles for latitude 45°S, August 19–August 22, 1980. Sunset events; sweep 16.

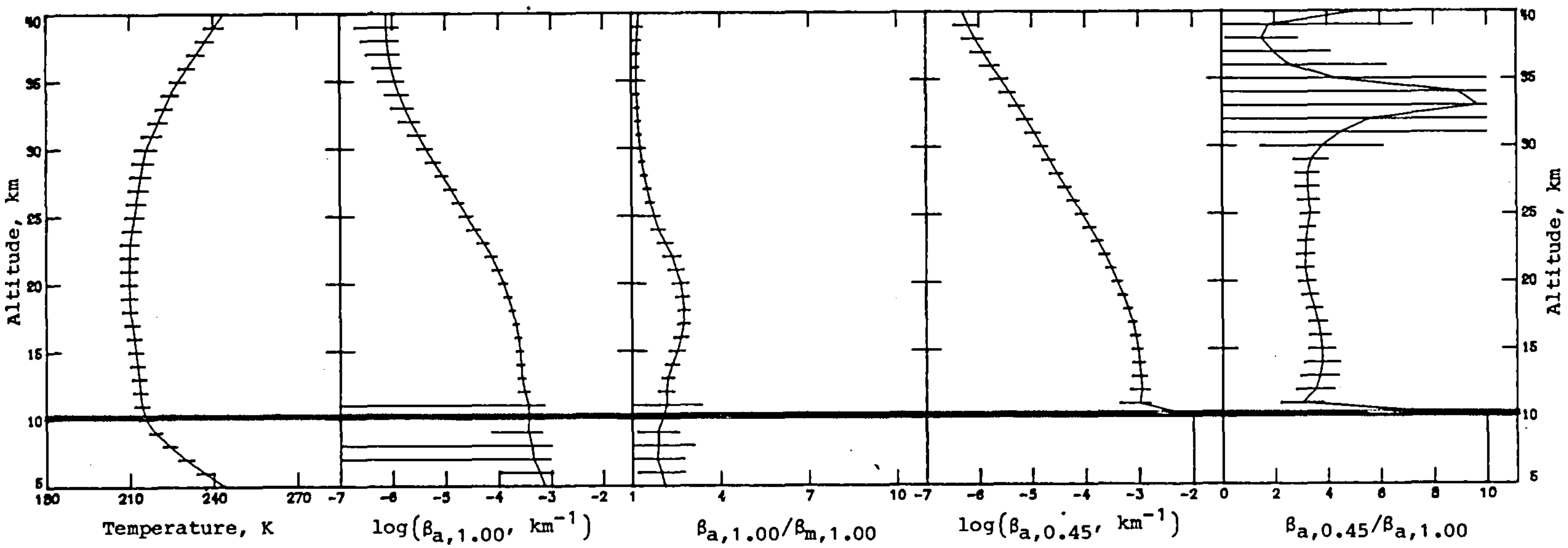


Figure 79. Average extinction and temperature profiles for latitude 55°S, August 22–August 28, 1980. Sunset events; sweep 16.

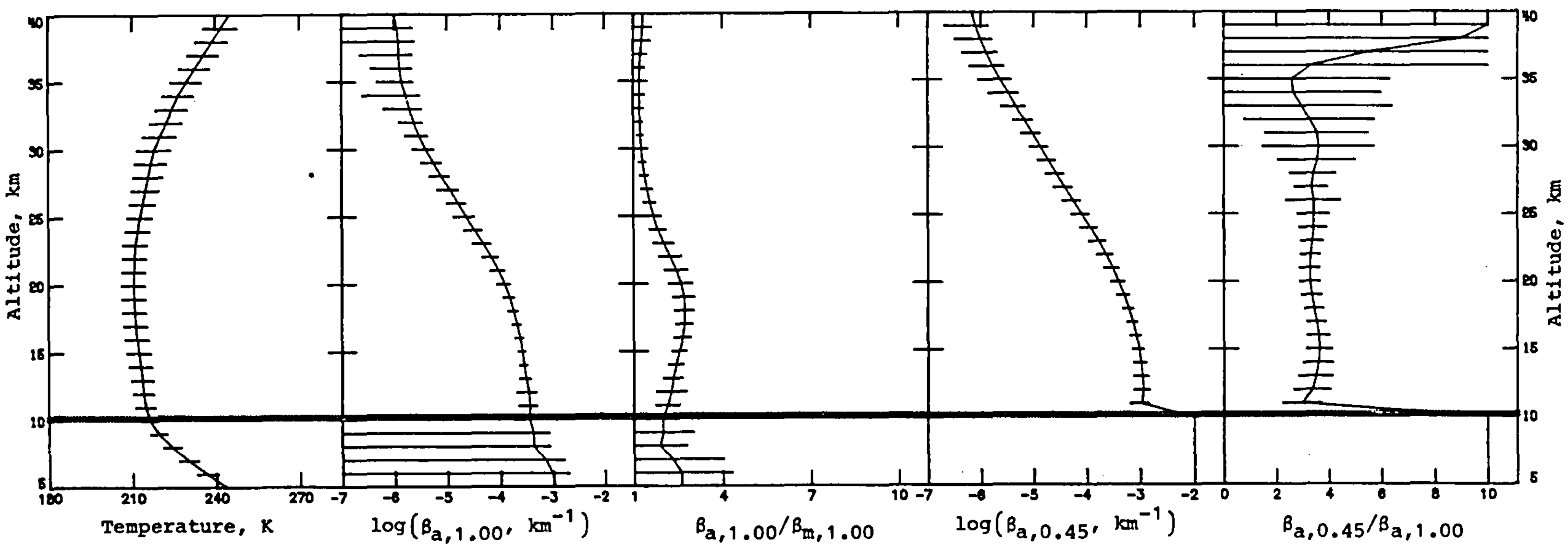


Figure 80. Average extinction and temperature profiles for latitude 55°S, August 28–September 3, 1980. Sunset events; sweep 17.

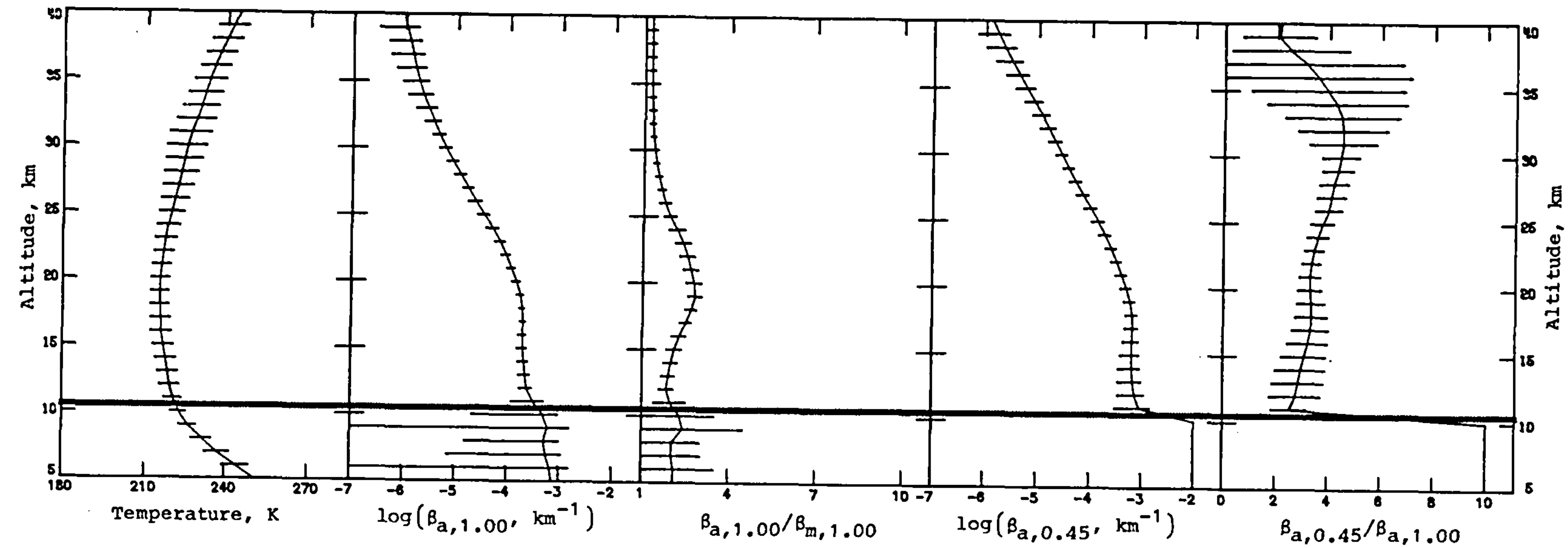


Figure 81. Average extinction and temperature profiles for latitude 45°S, September 3–September 7, 1980. Sunset events; sweep 17.

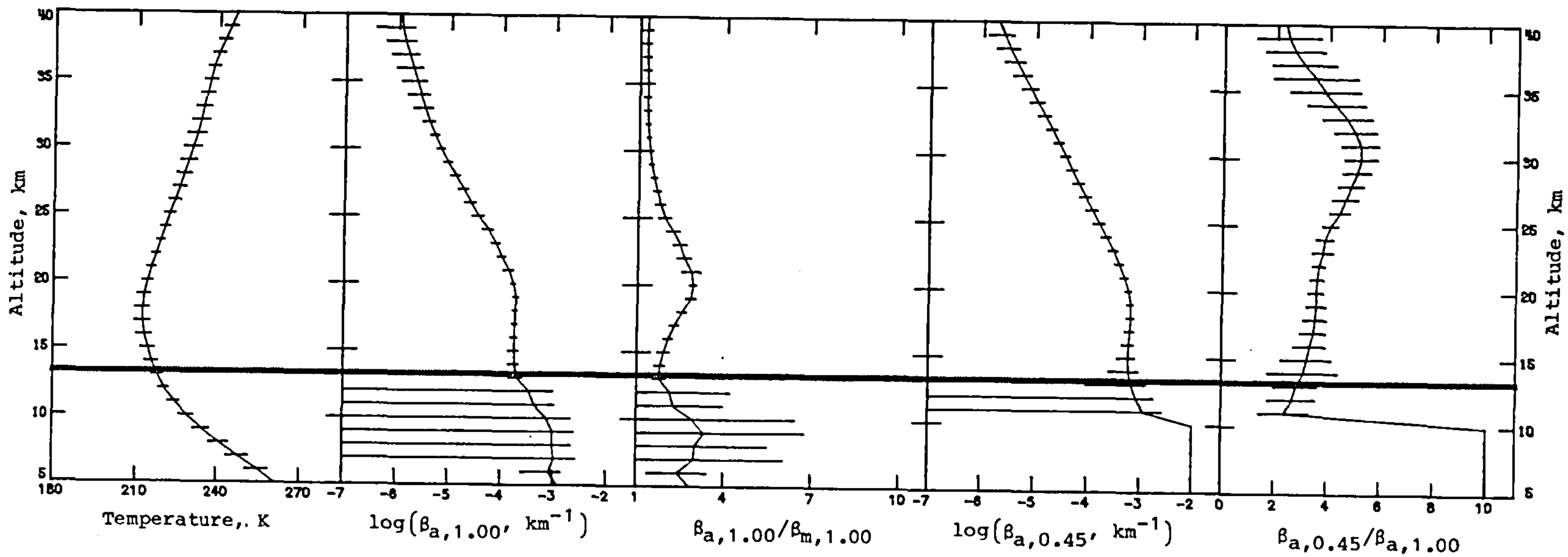


Figure 82. Average extinction and temperature profiles for latitude 35°S, September 7–September 10, 1980. Sunset events; sweep 17.

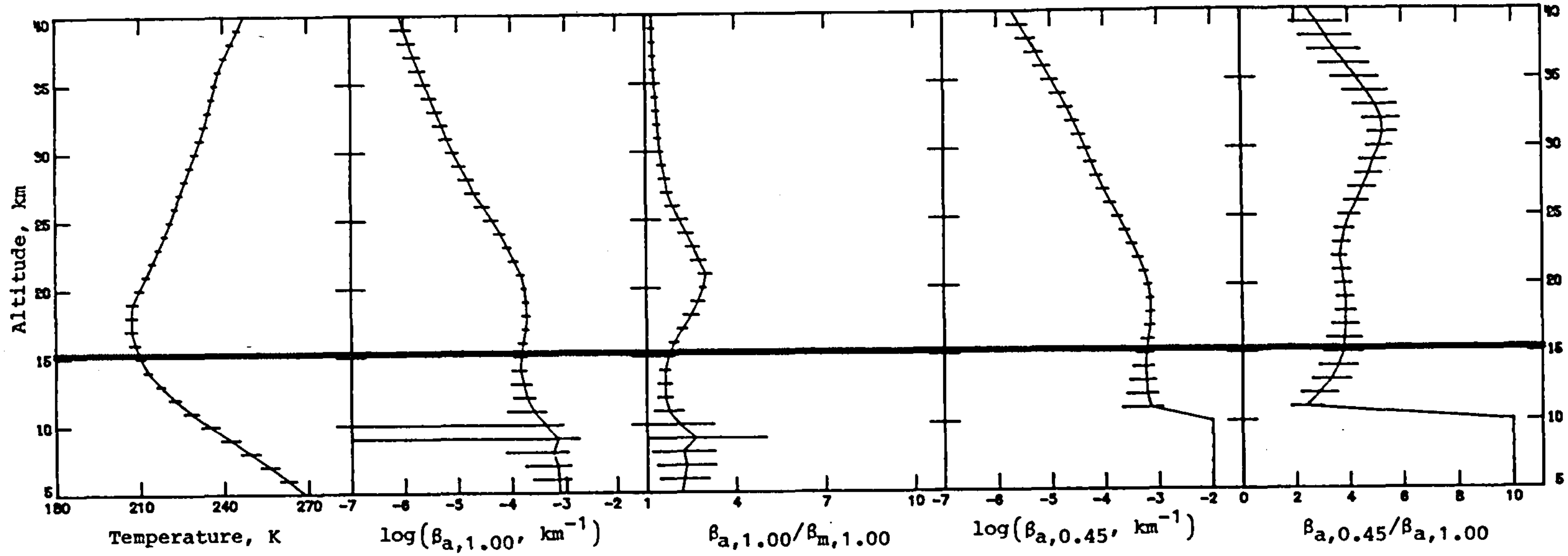


Figure 83. Average extinction and temperature profiles for latitude 25°S, September 10–September 12, 1980. Sunset events; sweep 17.

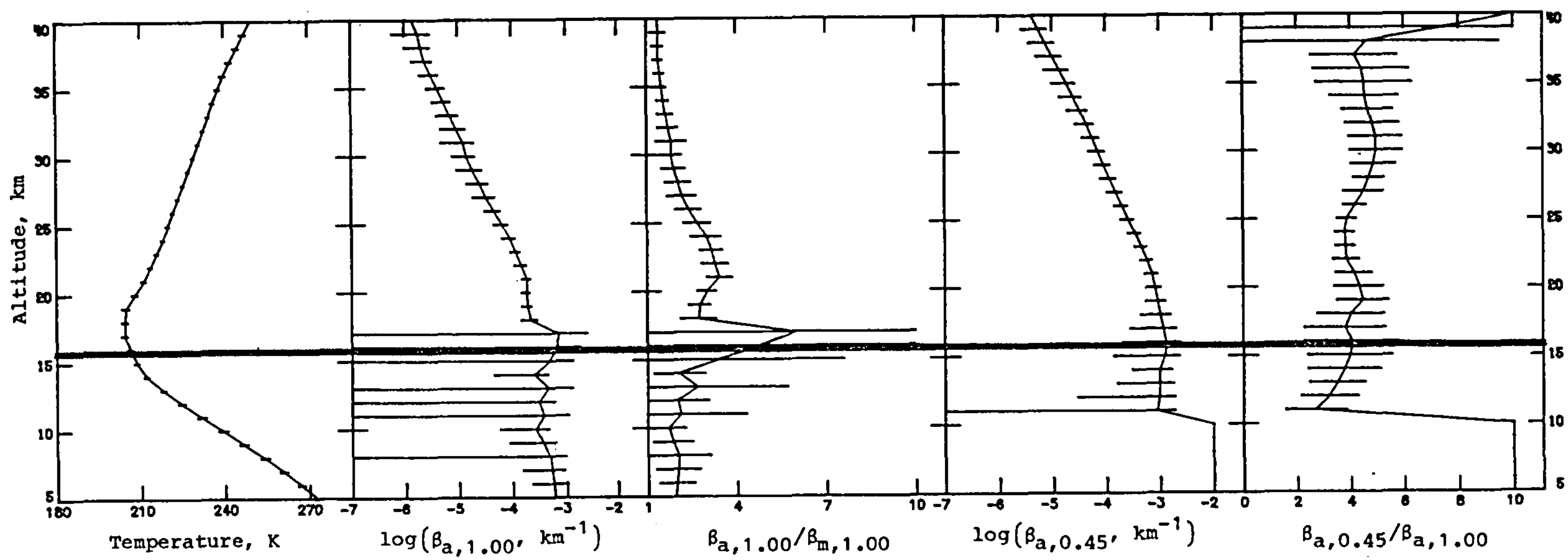


Figure 84. Average extinction and temperature profiles for latitude 15°S, September 12–September 13, 1980. Sunset events; sweep 17.

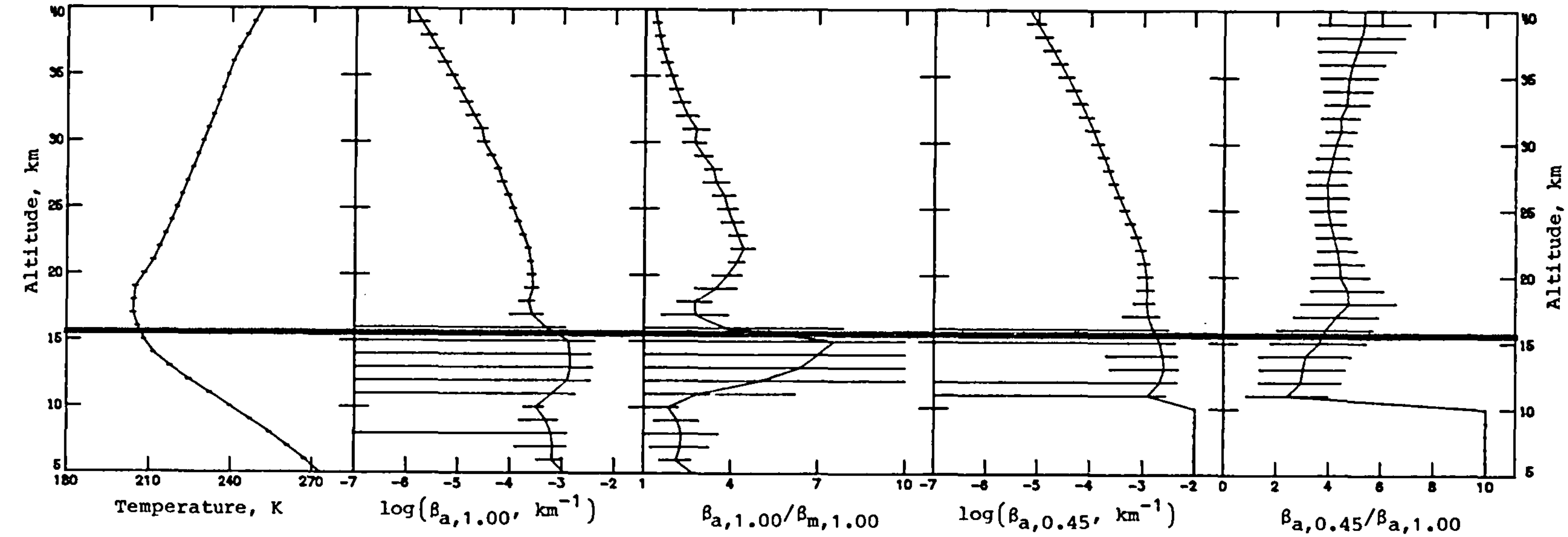


Figure 85. Average extinction and temperature profiles for latitude 5°S, September 13–September 14, 1980. Sunset events; sweep 17.

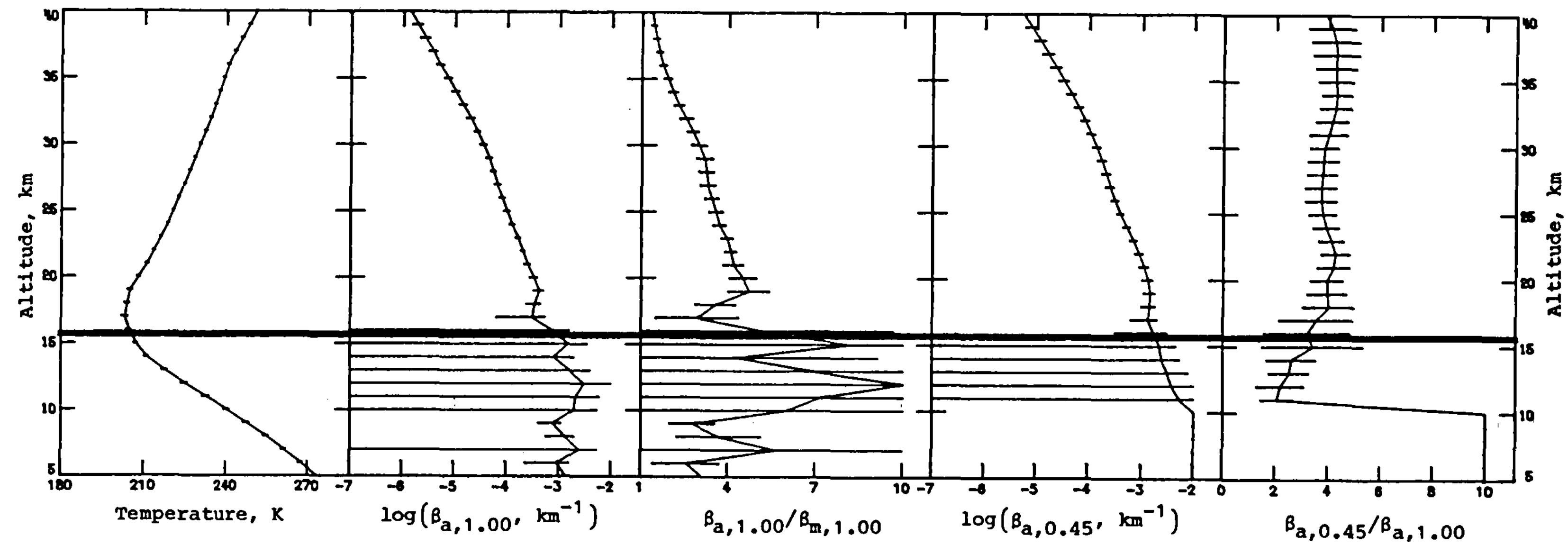


Figure 86. Average extinction and temperature profiles for latitude 5°N, September 14–September 15, 1980. Sunset events; sweep 17.

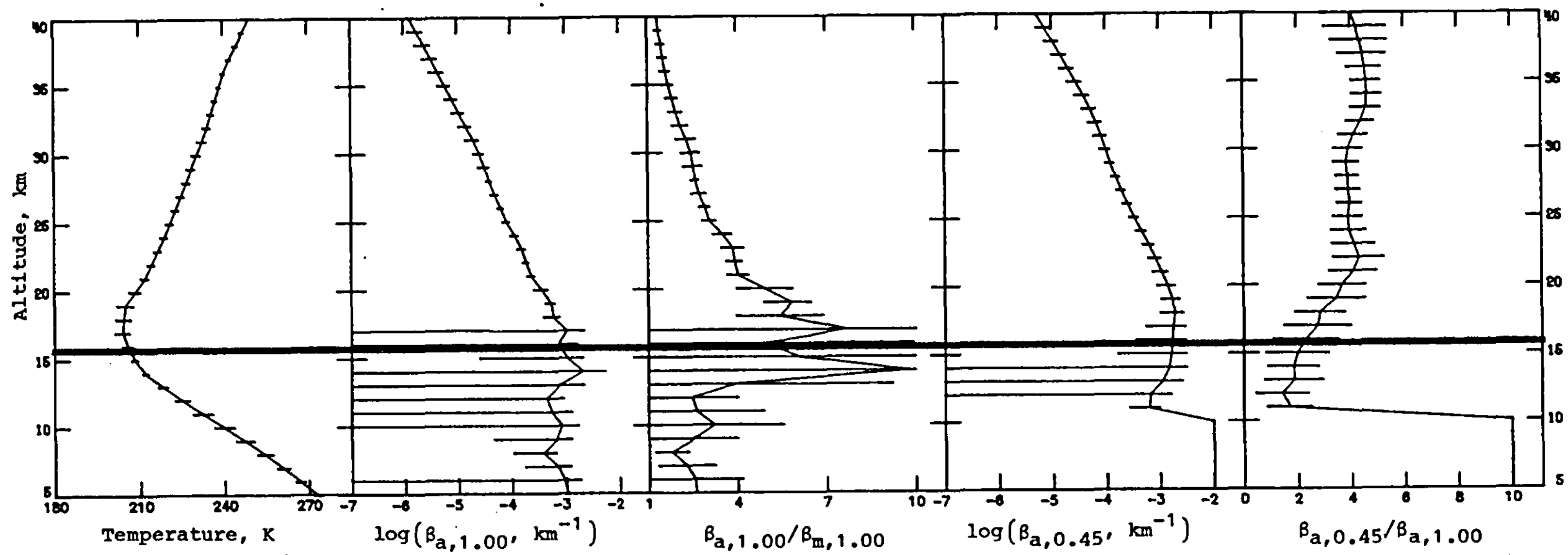


Figure 87. Average extinction and temperature profiles for latitude 15°N, September 16–September 17, 1980. Sunset events; sweep 17.

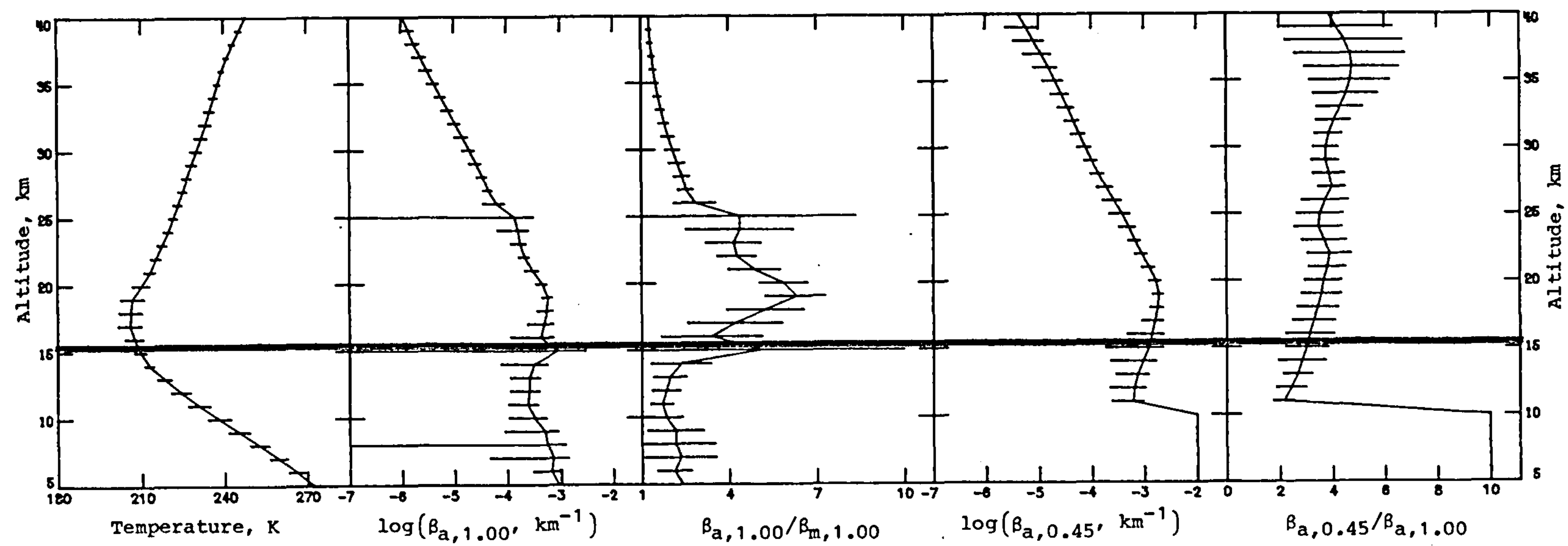


Figure 88. Average extinction and temperature profiles for latitude 25°N, September 17–September 18, 1980. Sunset events; sweep 17.

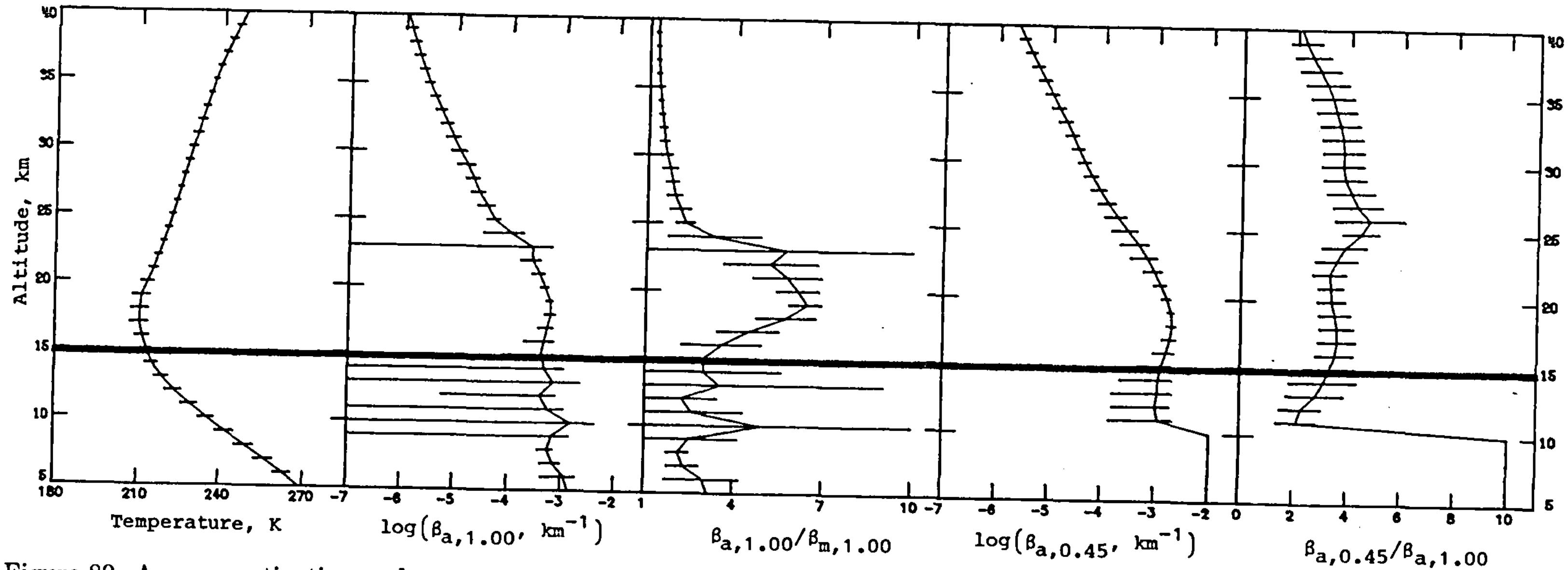


Figure 89. Average extinction and temperature profiles for latitude 35°N, September 18–September 19, 1980. Sunset events; sweep 17.

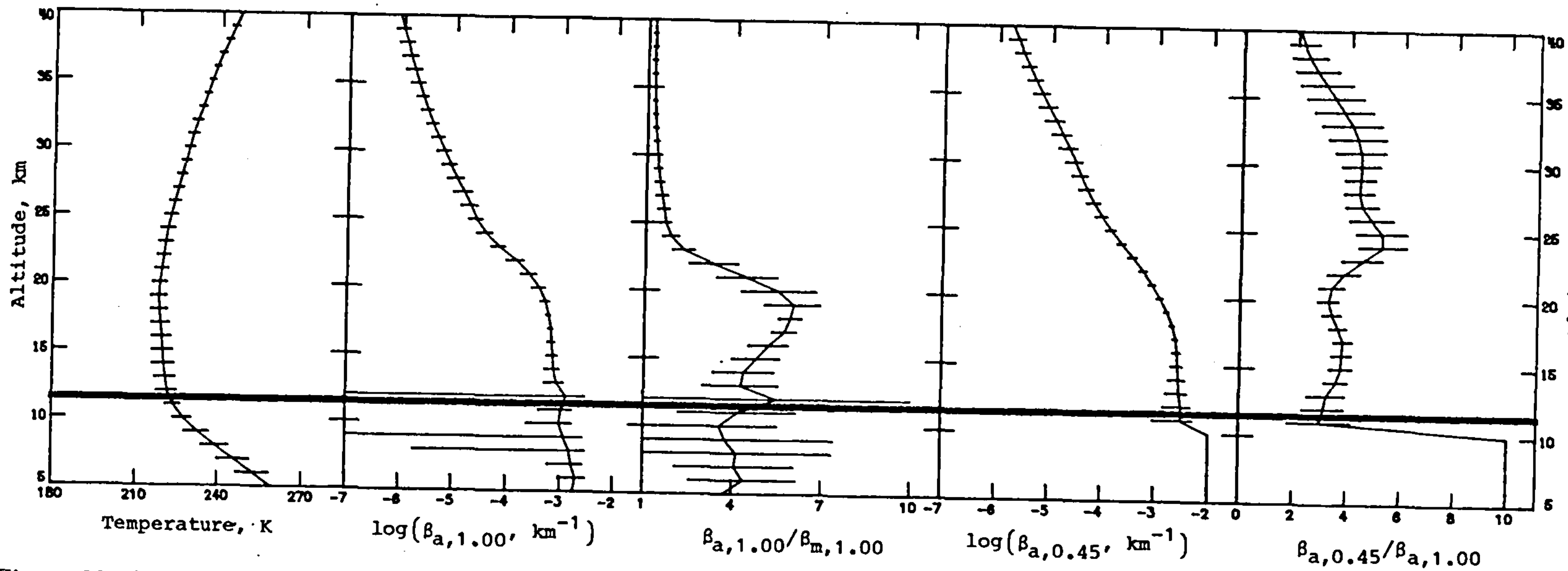


Figure 90. Average extinction and temperature profiles for latitude 45°N, September 19–September 21, 1980. Sunset events; sweep 17.

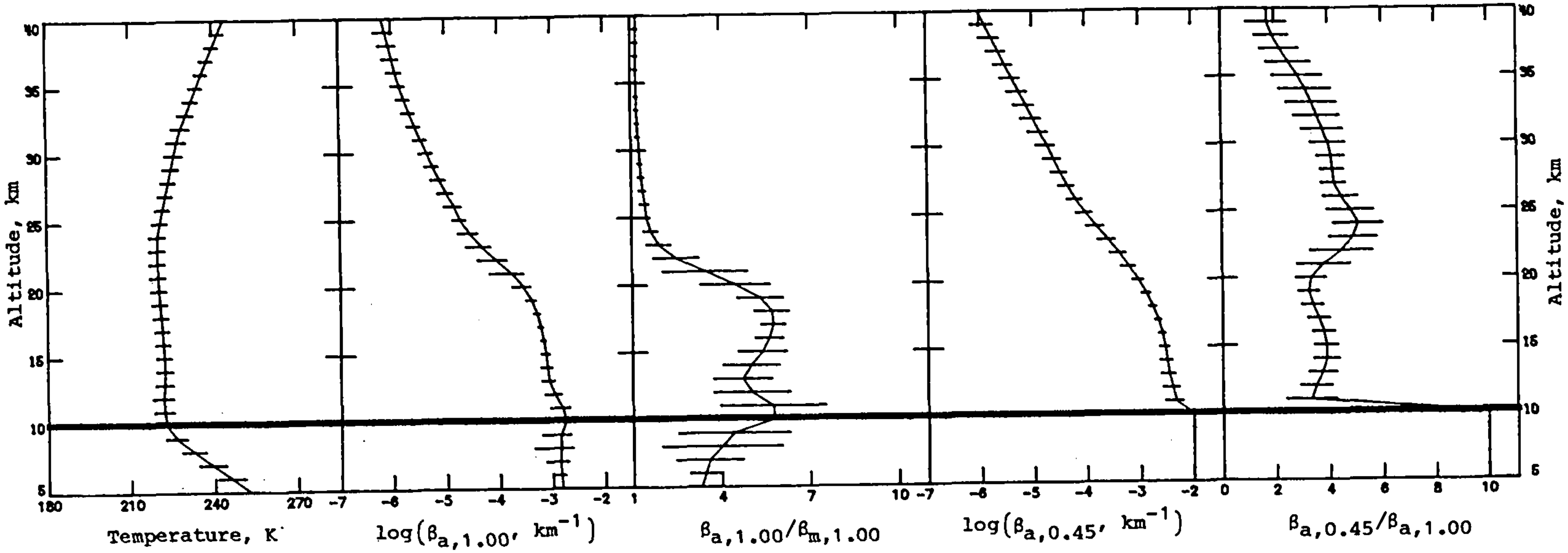


Figure 91. Average extinction and temperature profiles for latitude 55°N, September 21–September 24, 1980. Sunset events; sweep 17.

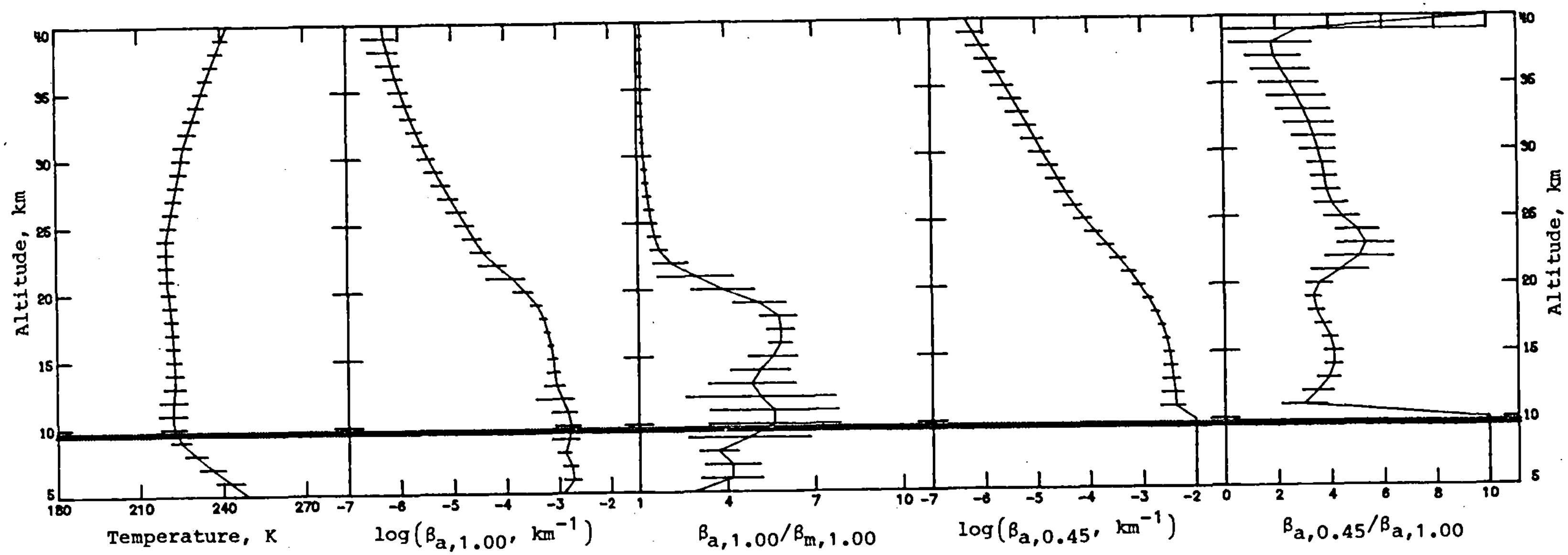


Figure 92. Average extinction and temperature profiles for latitude 65°N, September 24–September 27, 1980. Sunset events; sweep 17.

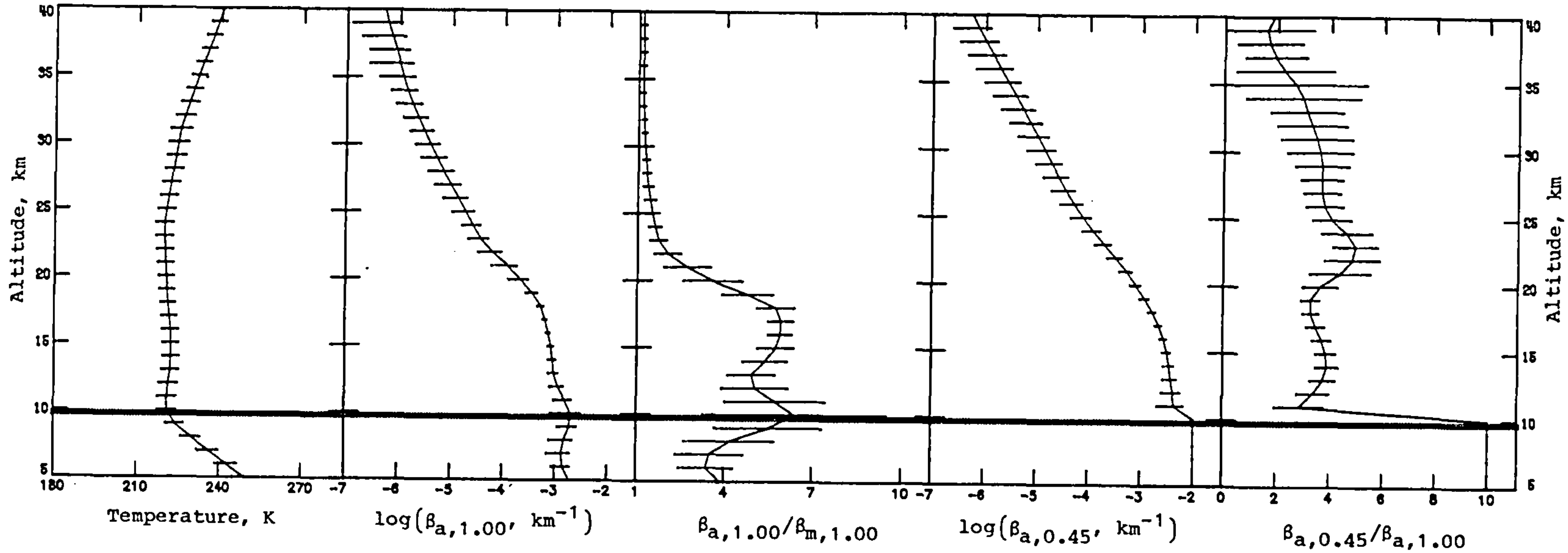


Figure 93. Average extinction and temperature profiles for latitude 65°N, September 27–October 2, 1980. Sunset events; sweep 18.

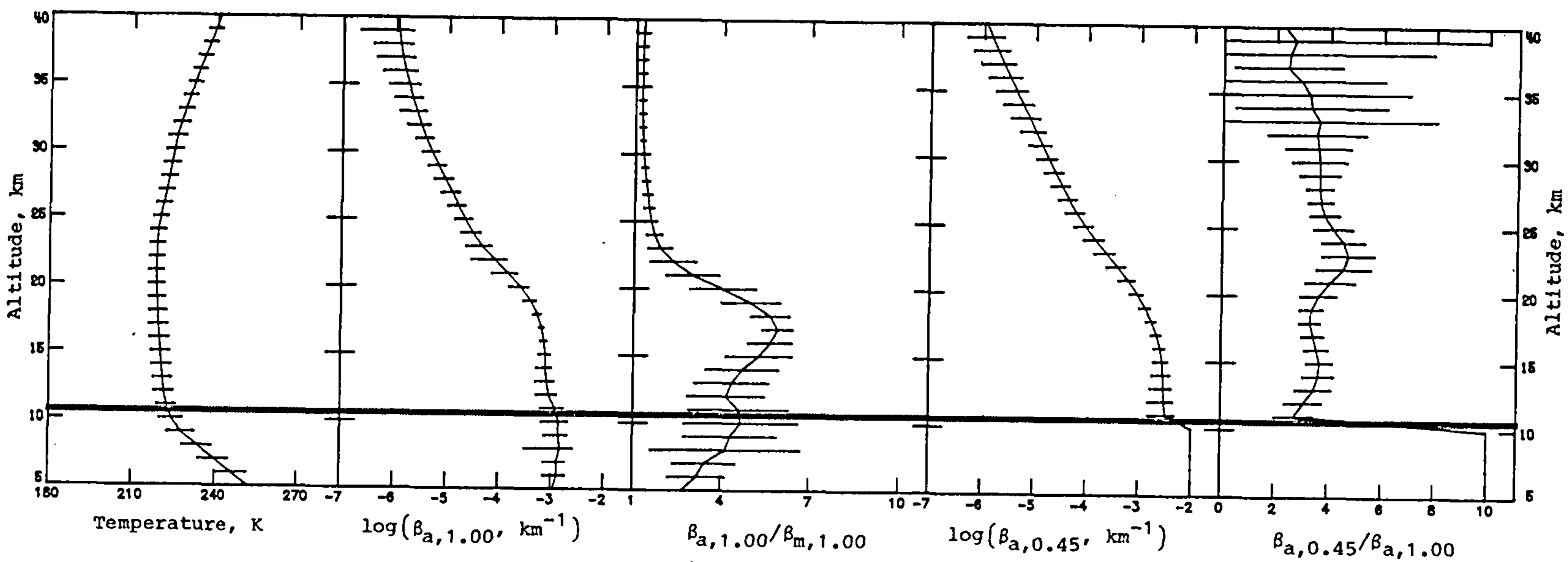


Figure 94. Average extinction and temperature profiles for latitude 55°N, October 2–October 9, 1980. Sunset events; sweep 18.

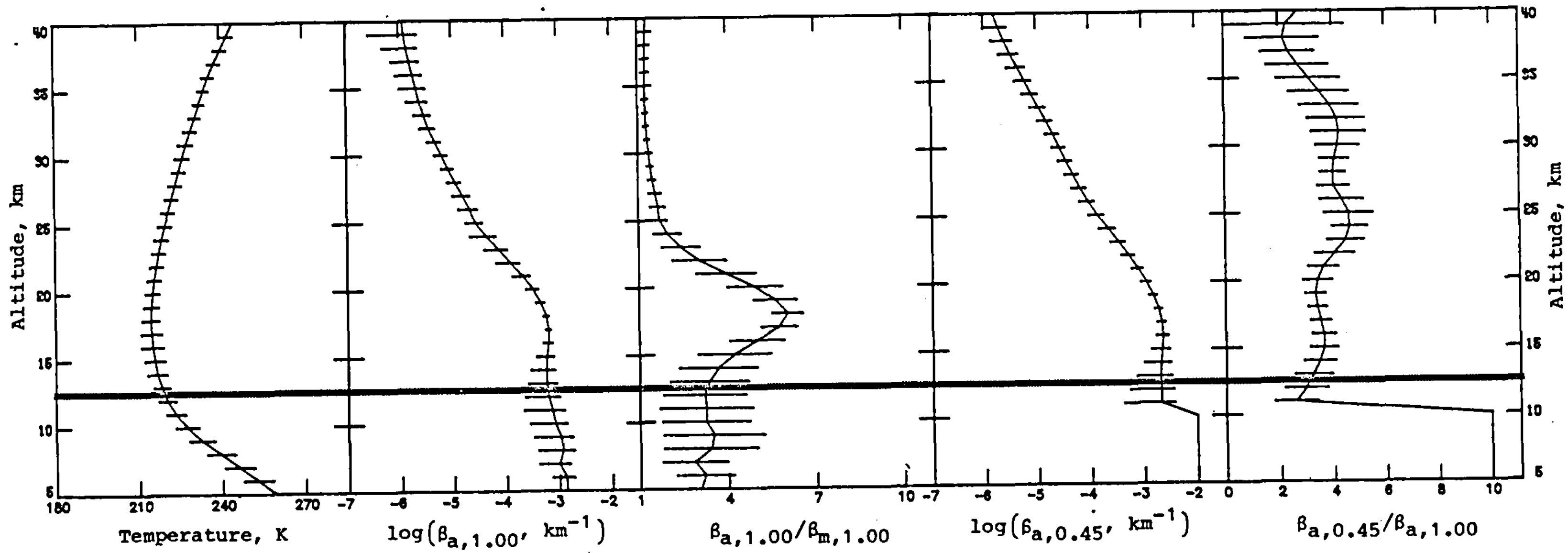


Figure 95. Average extinction and temperature profiles for latitude 45°N, October 9–October 13, 1980. Sunset events; sweep 18.

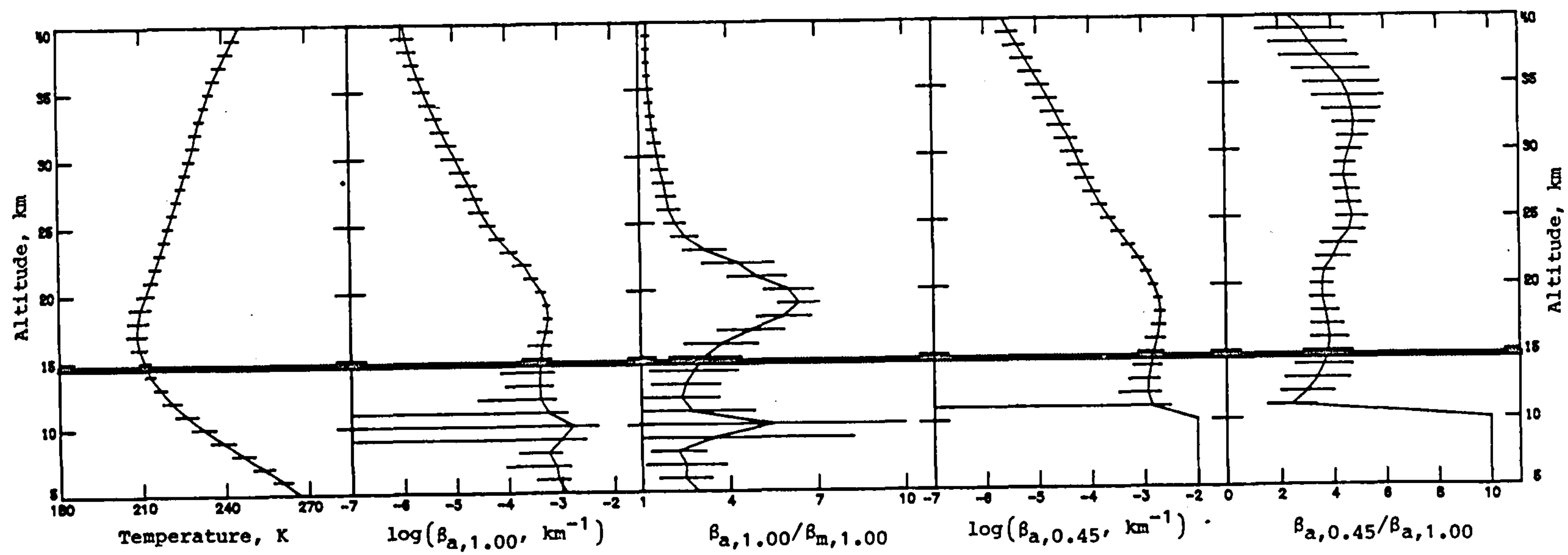


Figure 96. Average extinction and temperature profiles for latitude 35°N, October 13–October 15, 1980. Sunset events; sweep 18.

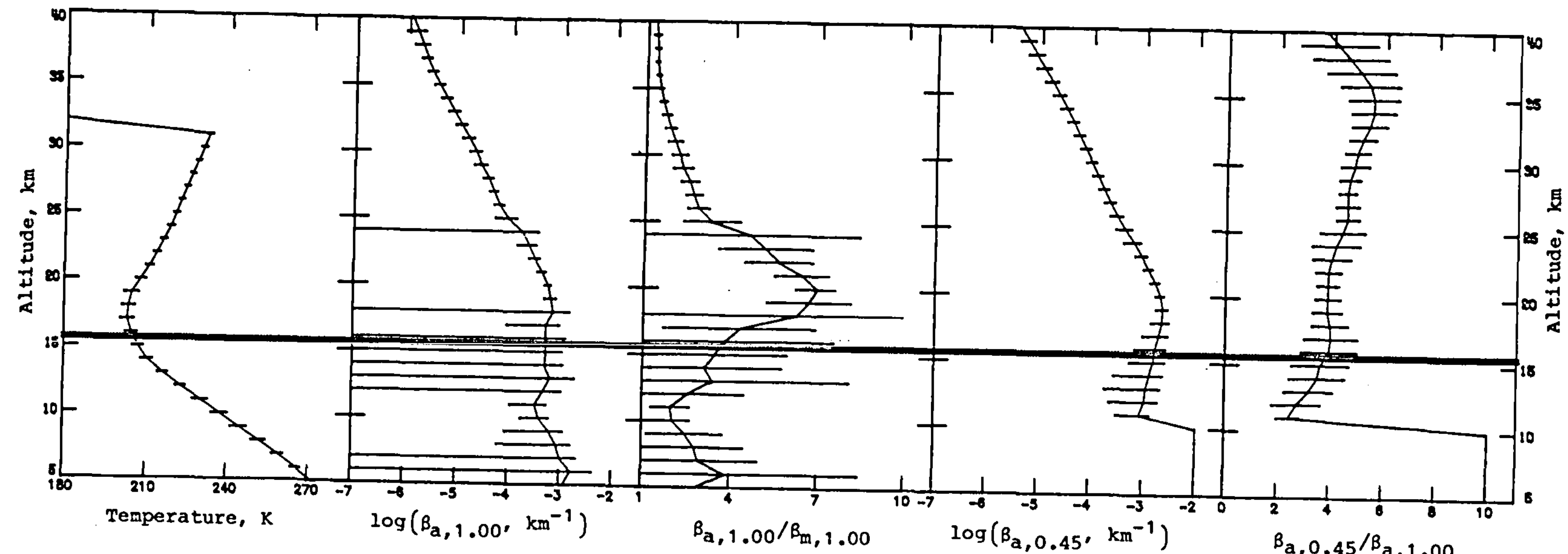


Figure 97. Average extinction and temperature profiles for latitude 25°N, October 15–October 17, 1980. Sunset events; sweep 18.

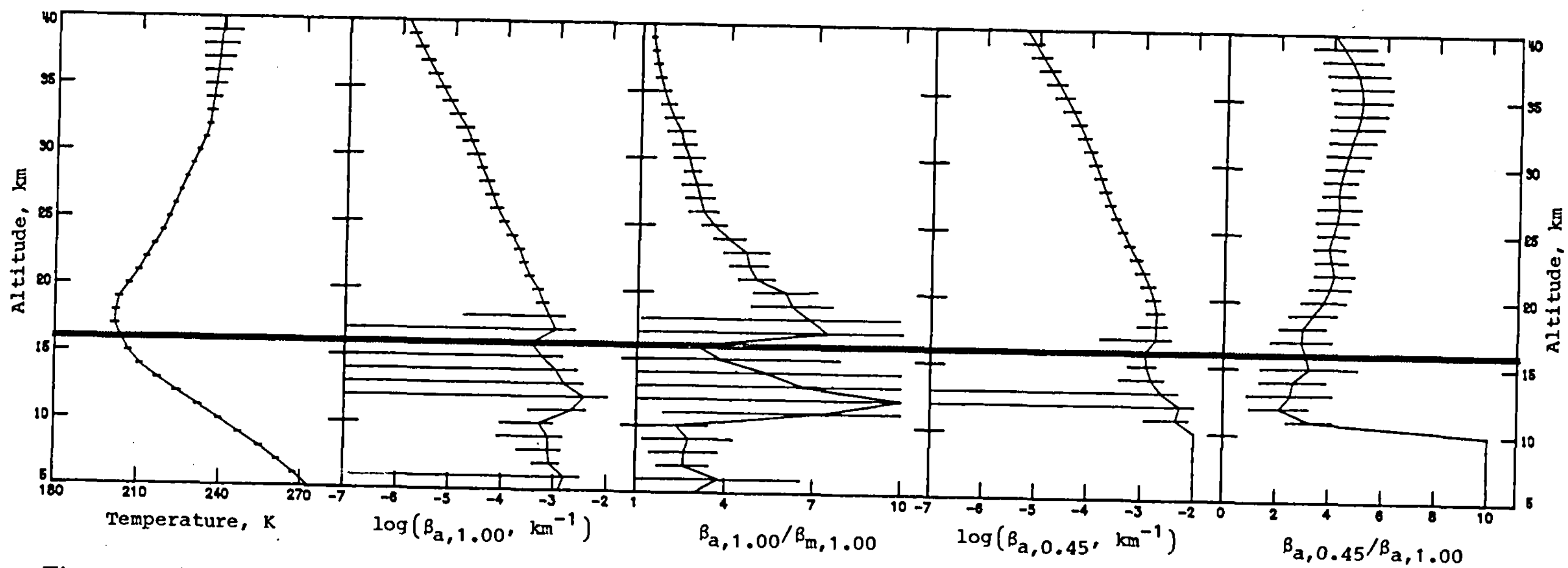


Figure 98. Average extinction and temperature profiles for latitude 15°N, October 17–October 18, 1980. Sunset events; sweep 18.

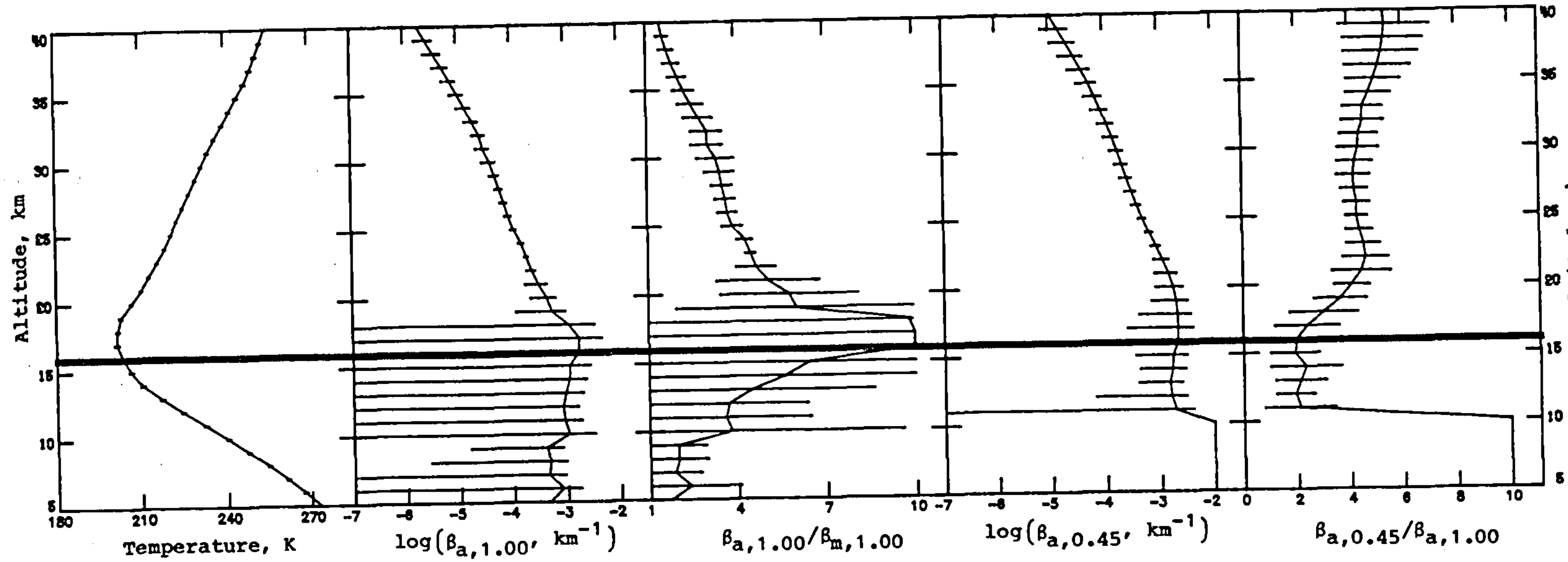


Figure 99. Average extinction and temperature profiles for latitude 5°N, October 18–October 19, 1980. Sunset events; sweep 18.

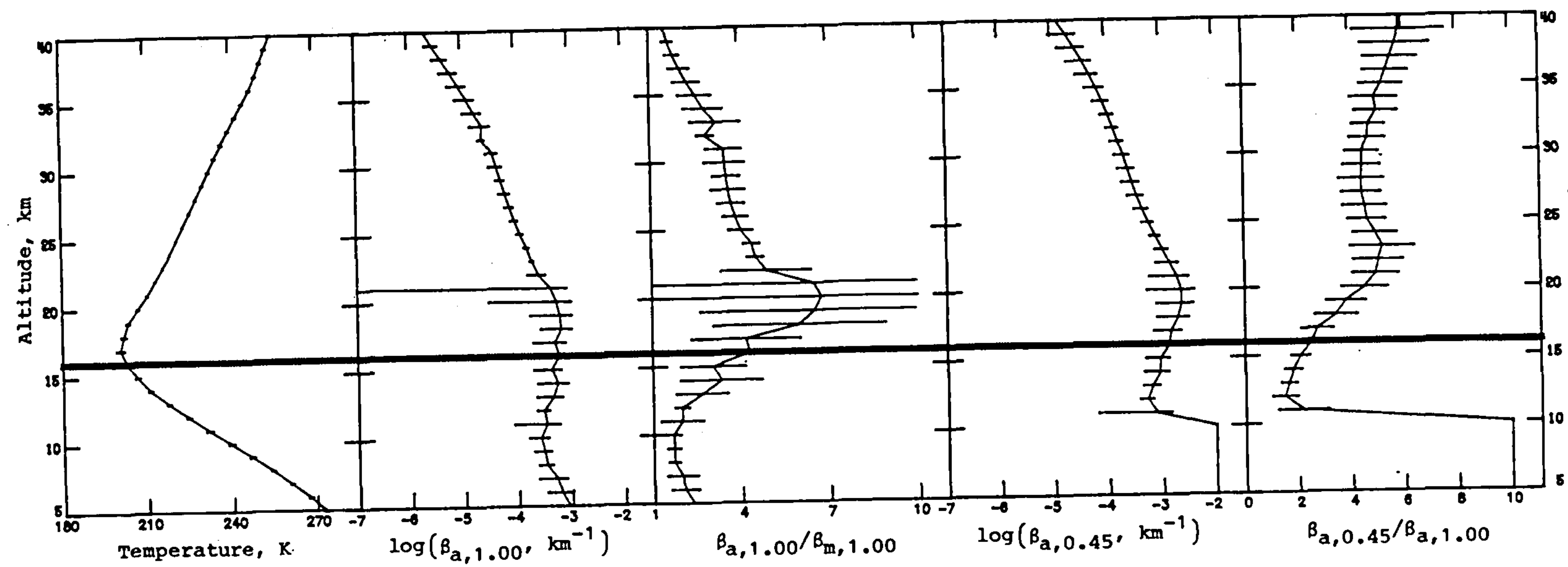


Figure 100. Average extinction and temperature profiles for latitude 5°S, October 19–October 20, 1980. Sunset events; sweep 18.

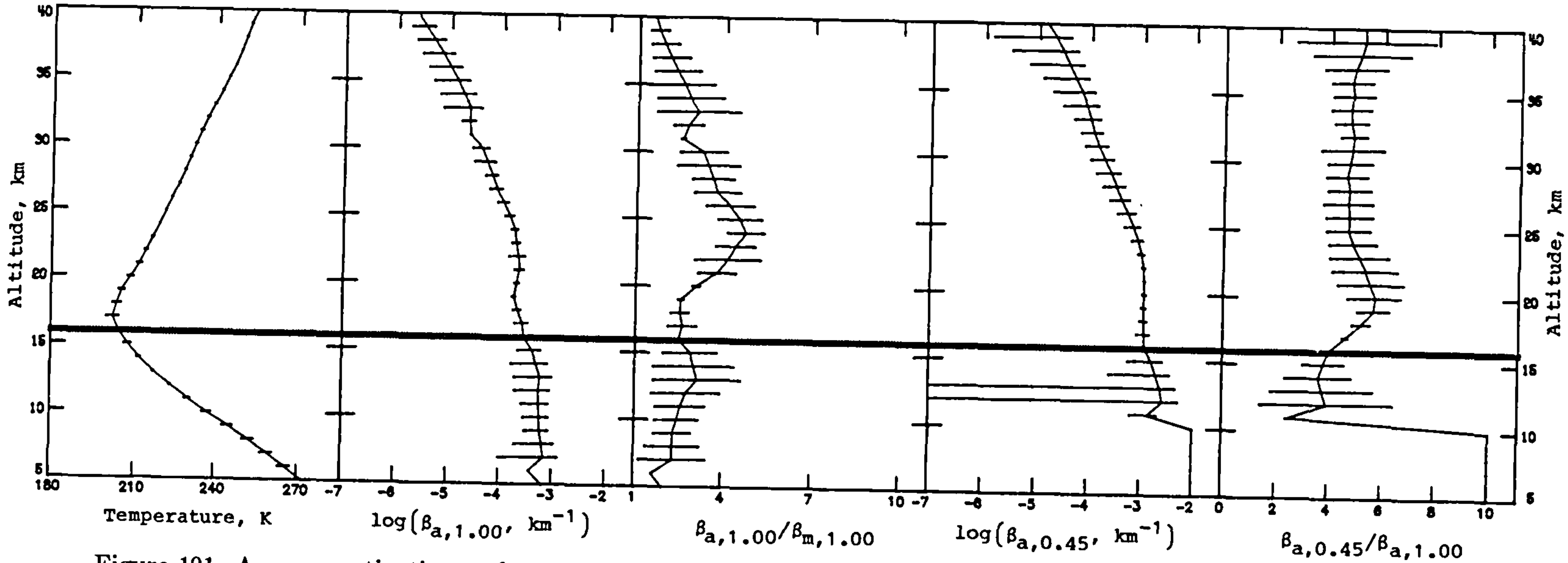


Figure 101. Average extinction and temperature profiles for latitude 15°S, October 20, 1980. Sunset events; sweep 18.

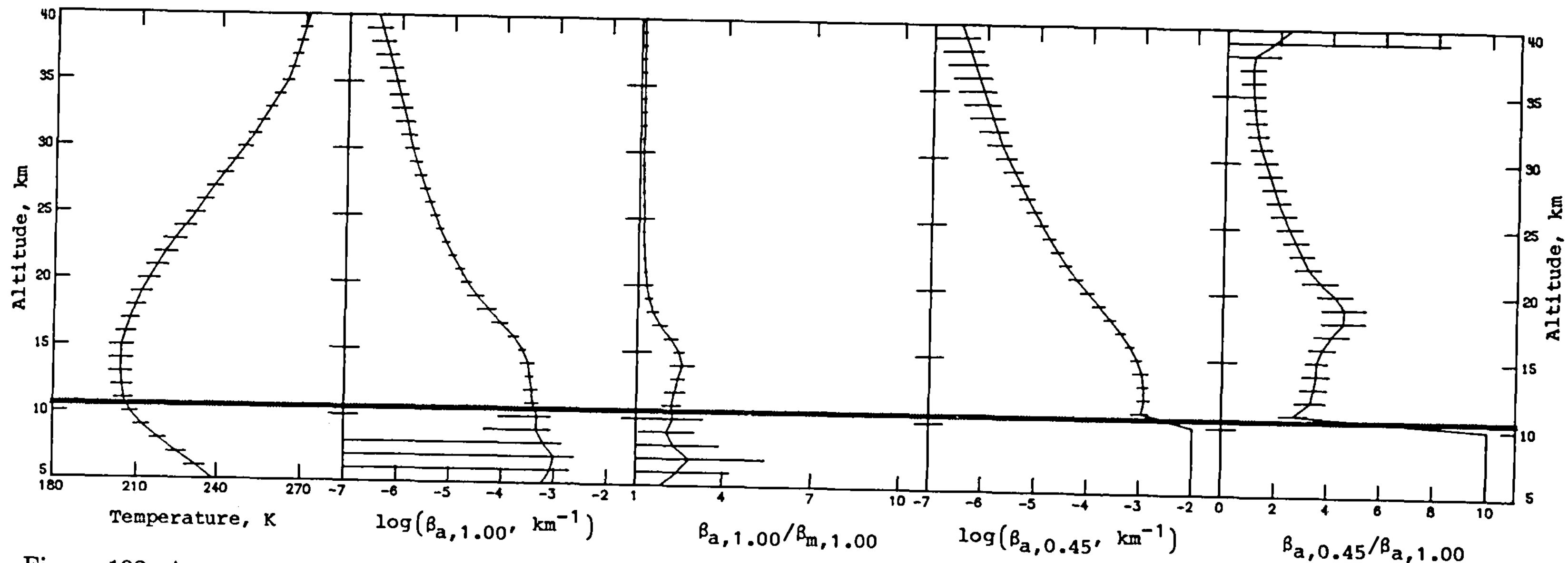


Figure 102. Average extinction and temperature profiles for latitude 75°S, October 31–November 4, 1980. Sunset events; sweep 19.

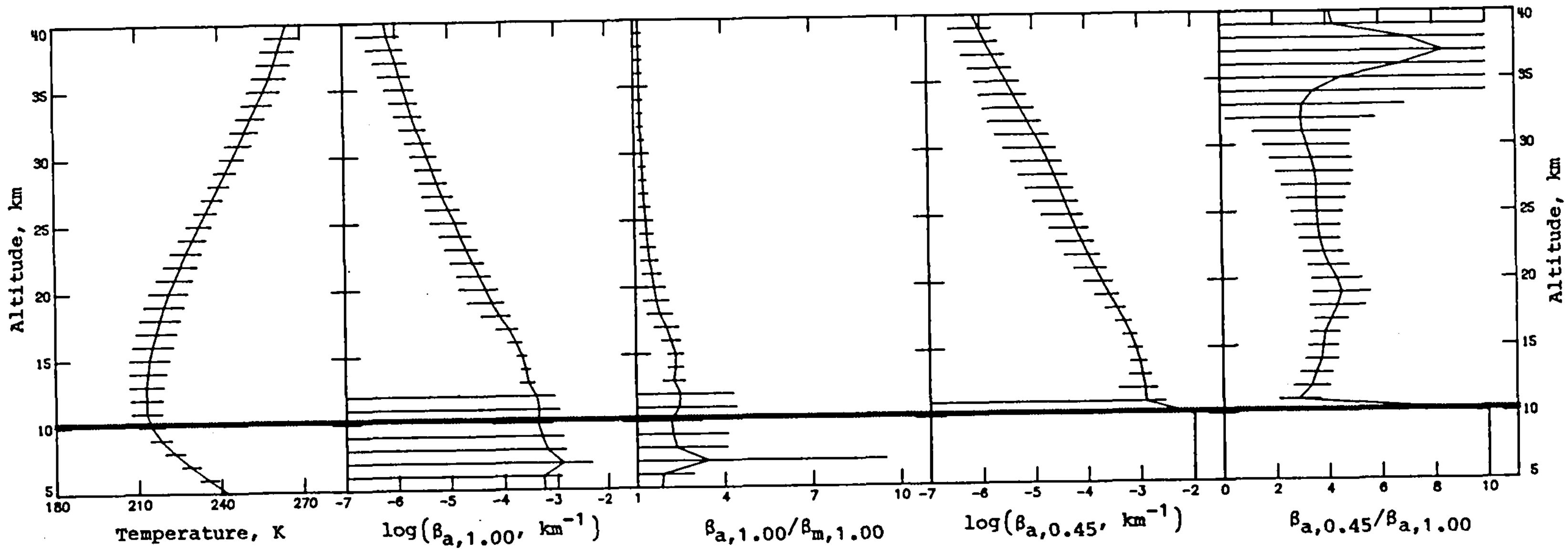


Figure 103. Average extinction and temperature profiles for latitude 65°S, November 4–November 9, 1980. Sunset events; sweep 19.

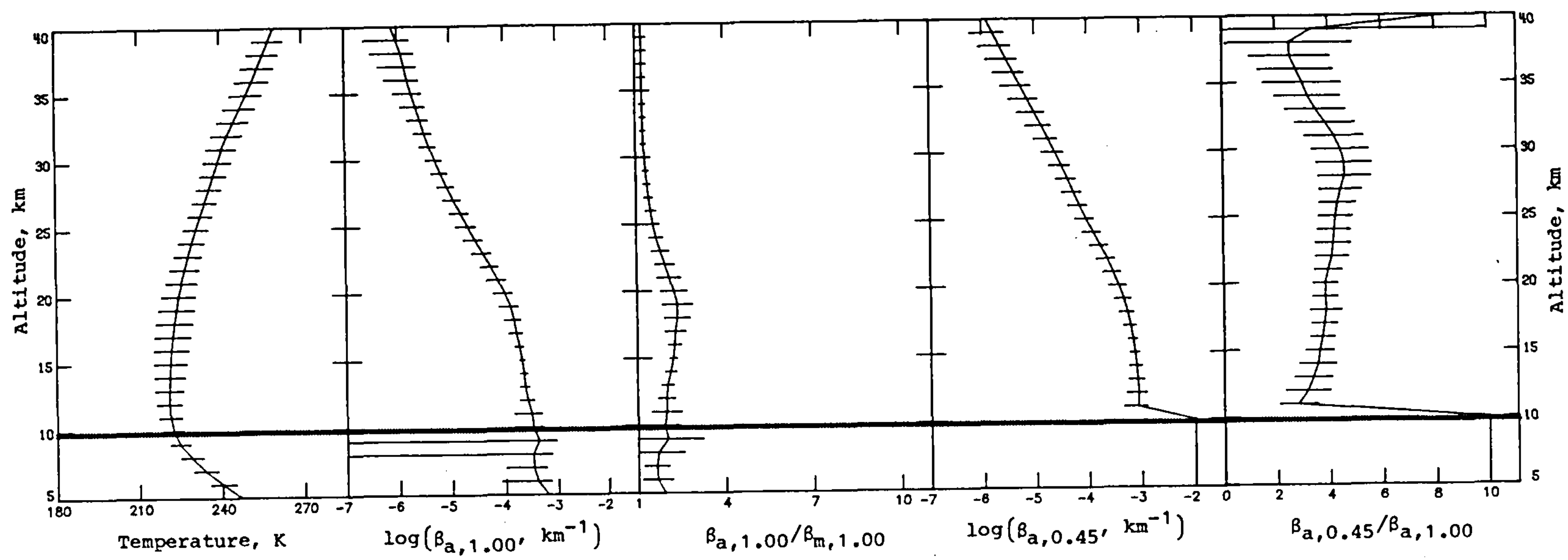


Figure 104. Average extinction and temperature profiles for latitude 55°S, November 9–November 13, 1980. Sunset events; sweep 19.

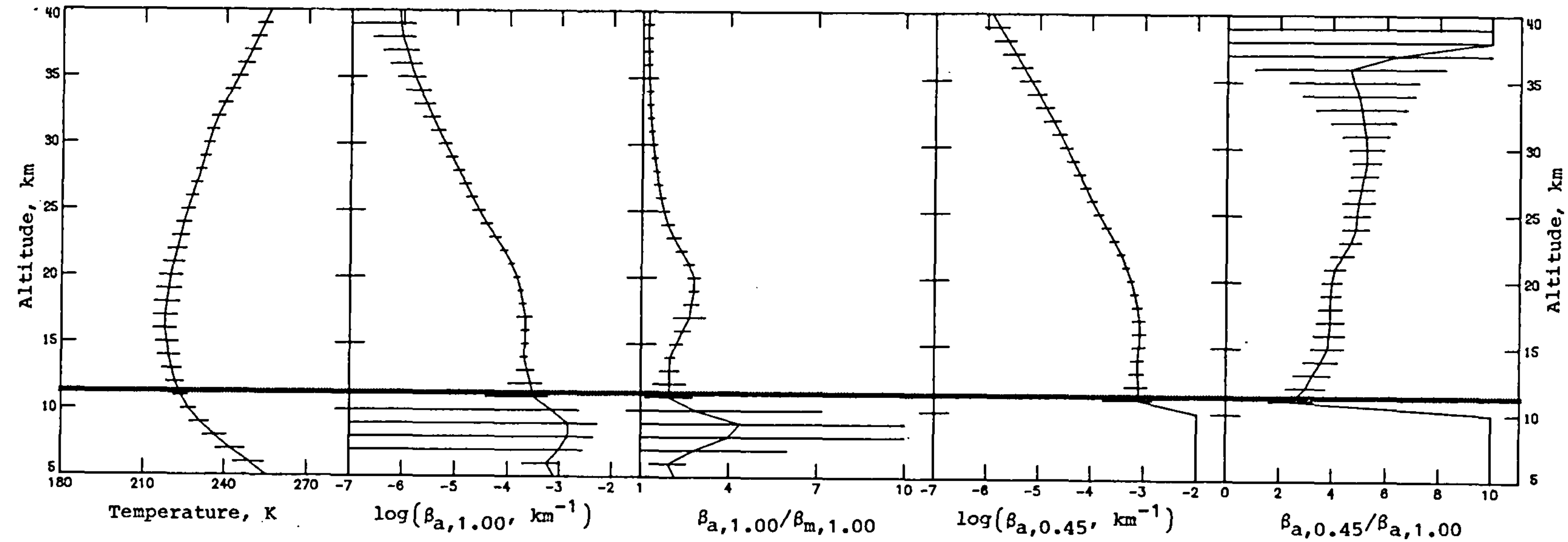


Figure 105. Average extinction and temperature profiles for latitude 45°S, November 13–November 16, 1980. Sunset events; sweep 19.

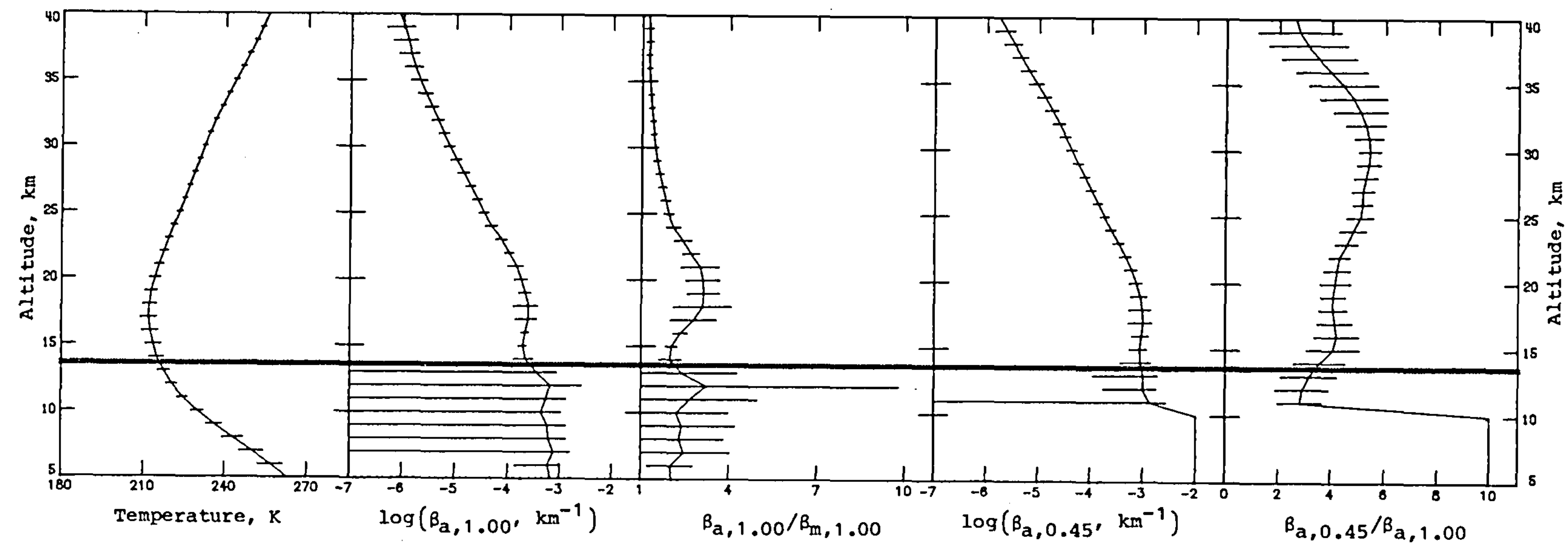


Figure 106. Average extinction and temperature profiles for latitude 35°S, November 16–November 19, 1980. Sunset events; sweep 19.

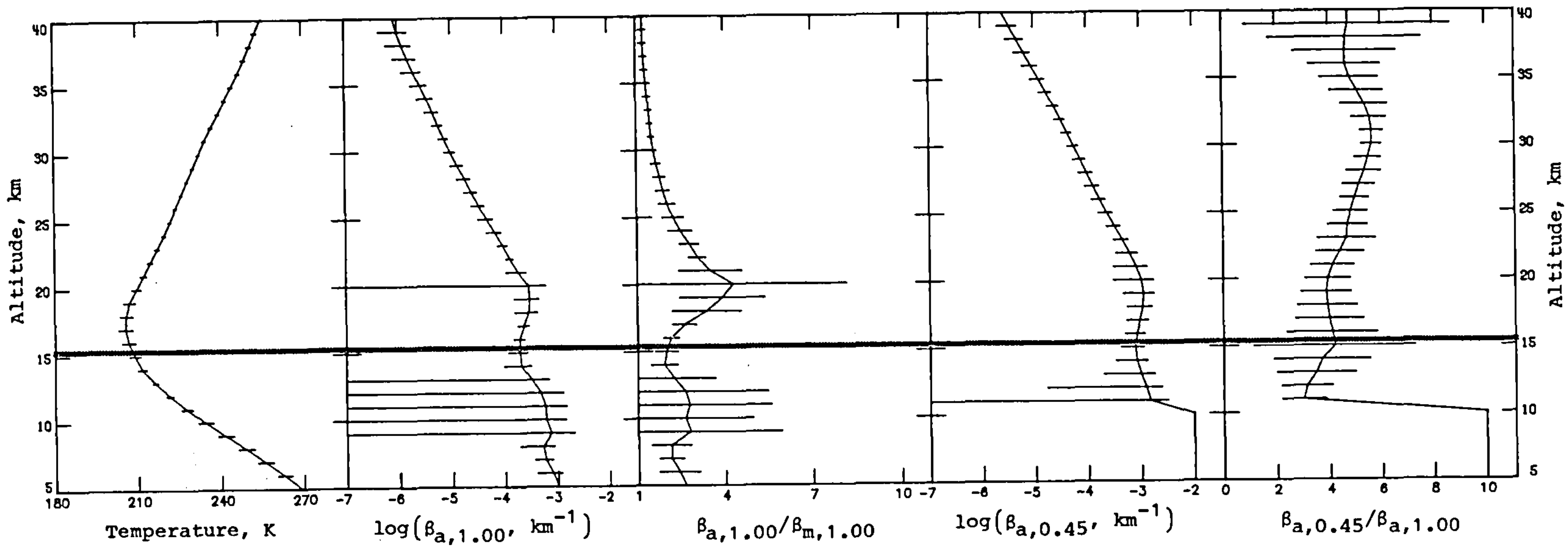


Figure 107. Average extinction and temperature profiles for latitude 25°S, November 19–November 21, 1980. Sunset events; sweep 19.

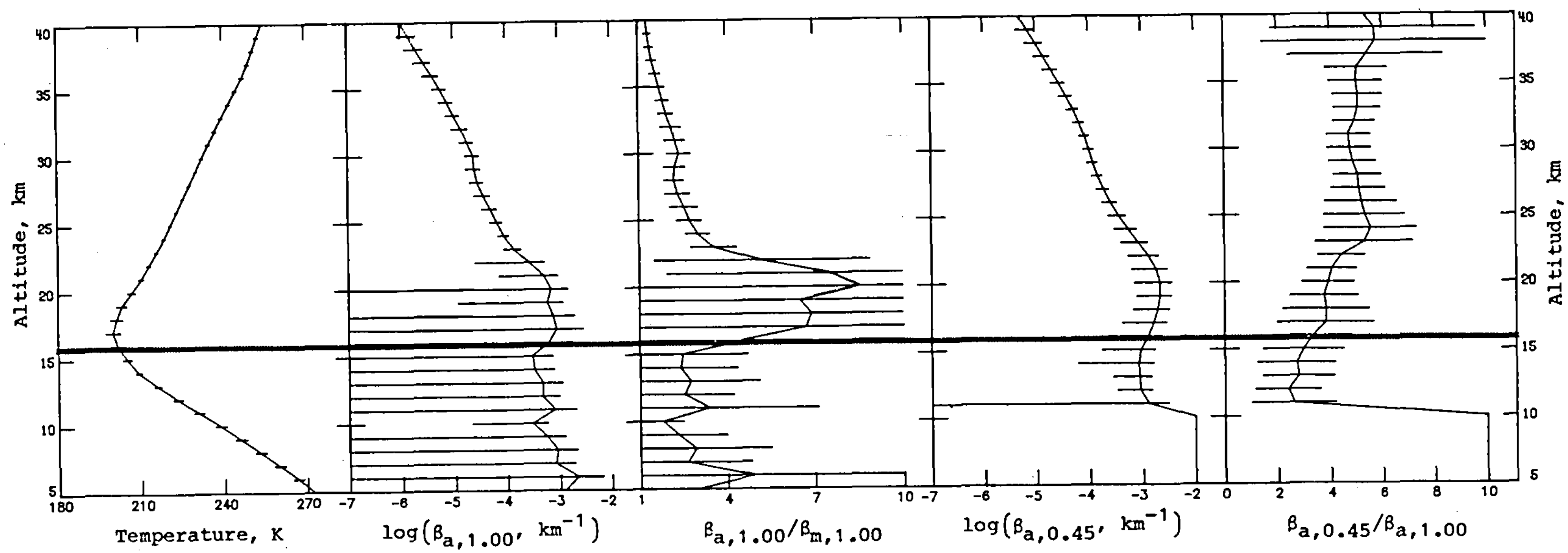


Figure 108. Average extinction and temperature profiles for latitude 15°S, November 21–November 23, 1980. Sunset events; sweep 19.

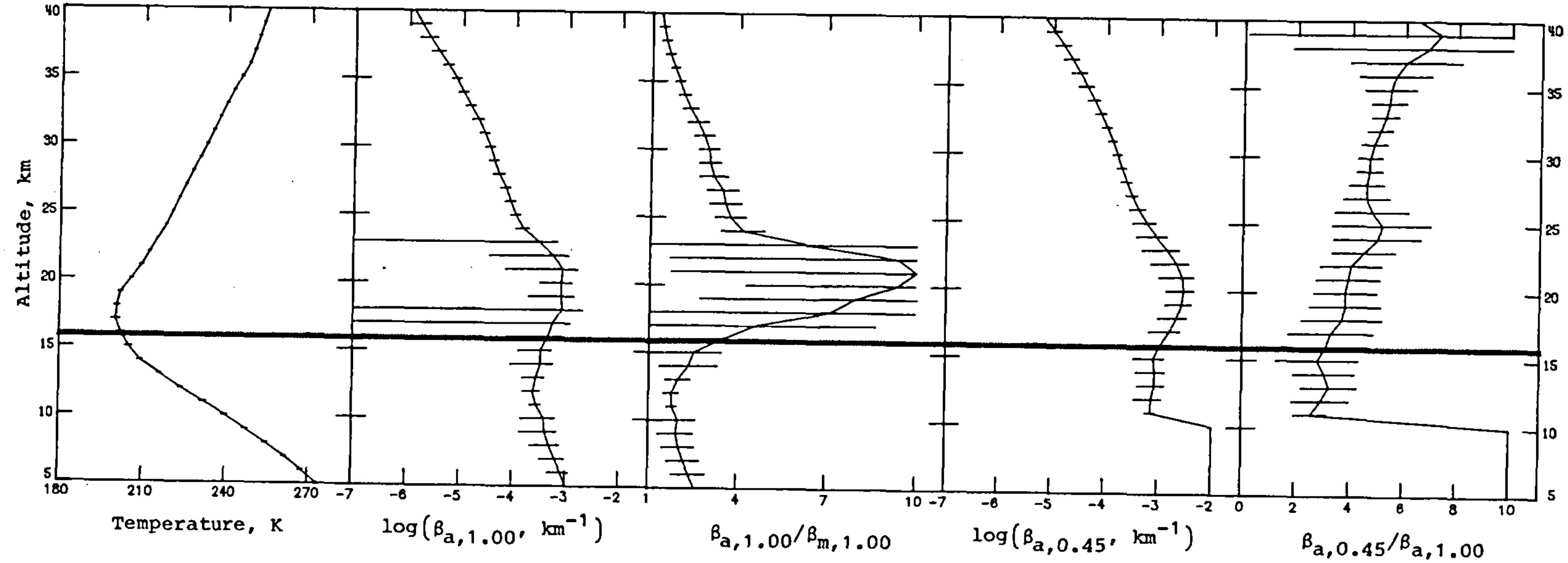


Figure 109. Average extinction and temperature profiles for latitude 5°S, November 23–November 25, 1980. Sunset events; sweep 19.

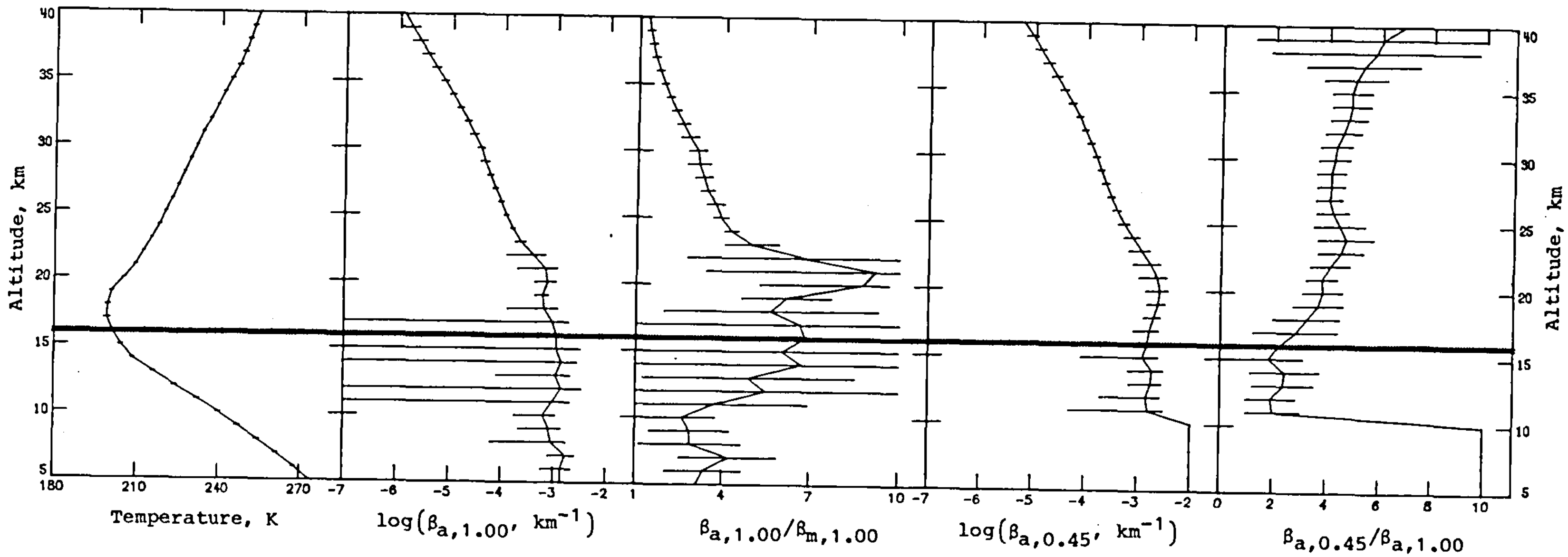


Figure 110. Average extinction and temperature profiles for latitude 5°N, November 25–November 27, 1980. Sunset events; sweep 19.

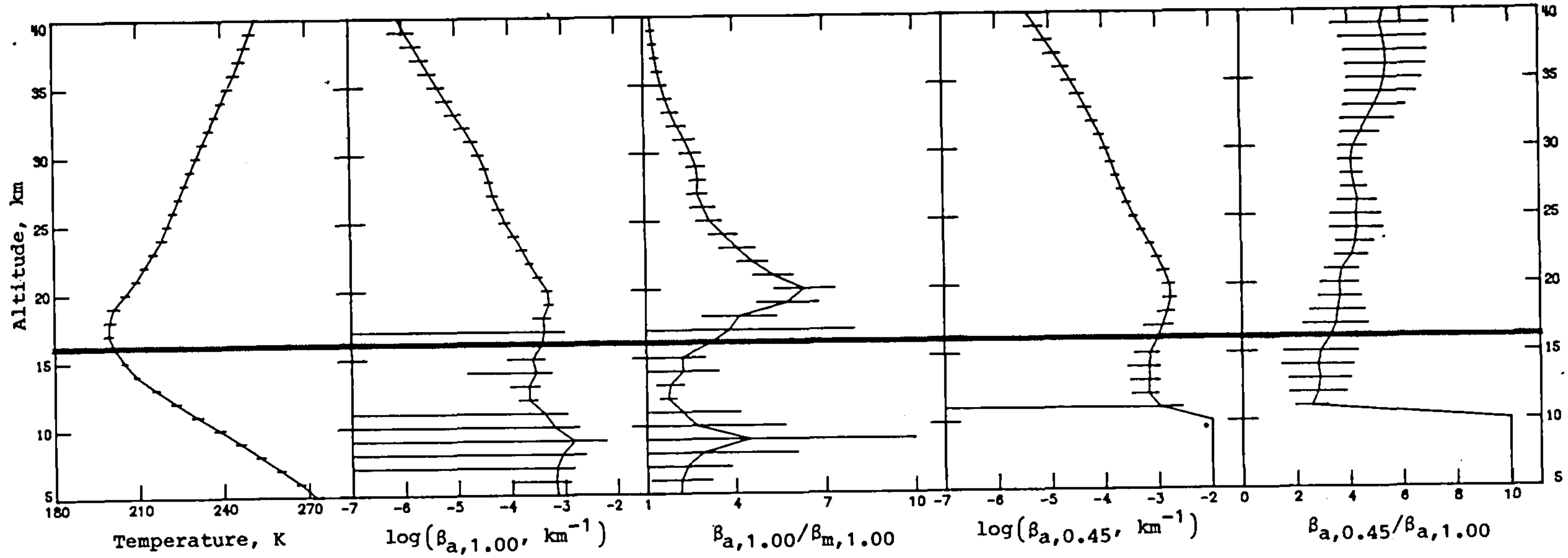


Figure 111. Average extinction and temperature profiles for latitude 15°N, November 27–November 29, 1980. Sunset events; sweep 19.

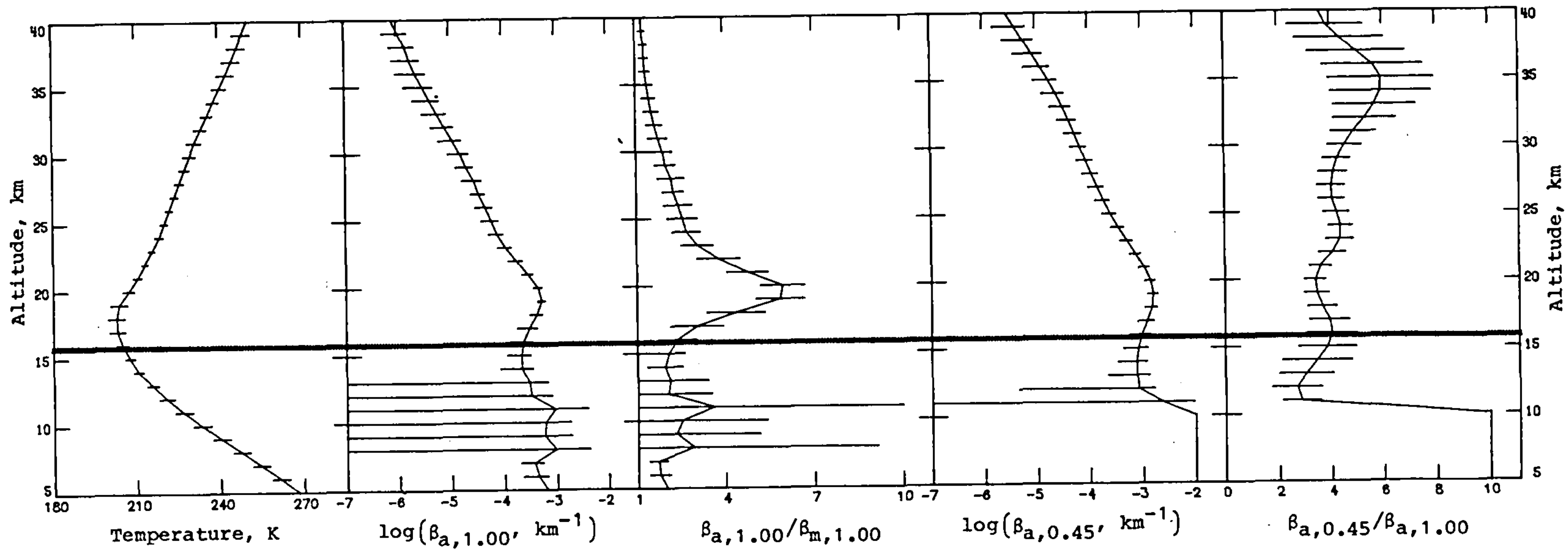


Figure 112. Average extinction and temperature profiles for latitude 25°N, November 29–December 1, 1980. Sunset events; sweep 19.

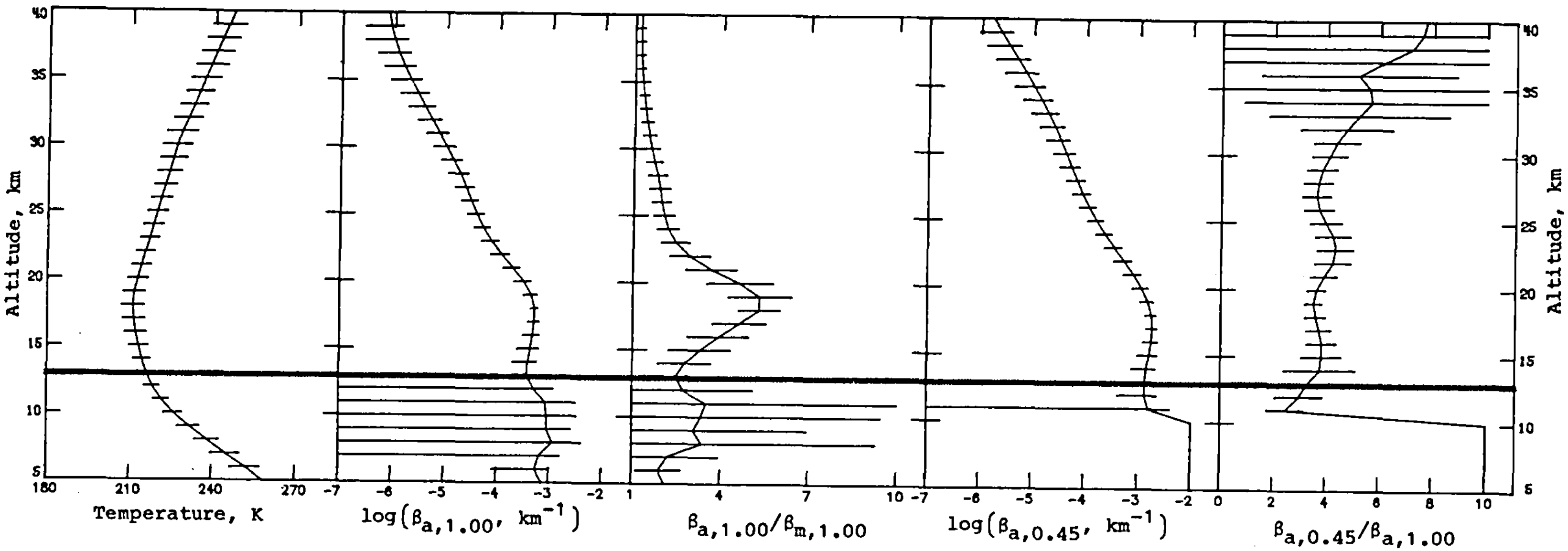


Figure 113. Average extinction and temperature profiles for latitude 35°N, December 1–December 5, 1980. Sunset events; sweep 19.

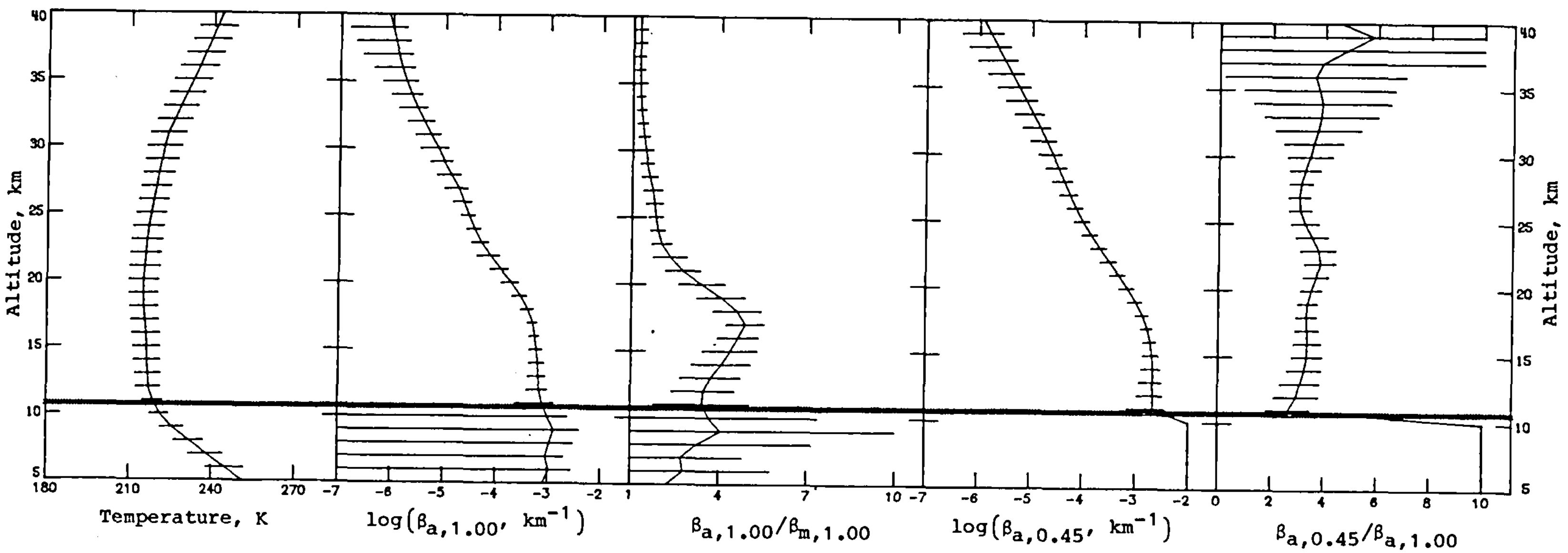


Figure 114. Average extinction and temperature profiles for latitude 45°N, December 5–December 13, 1980. Sunset events; sweep 19.

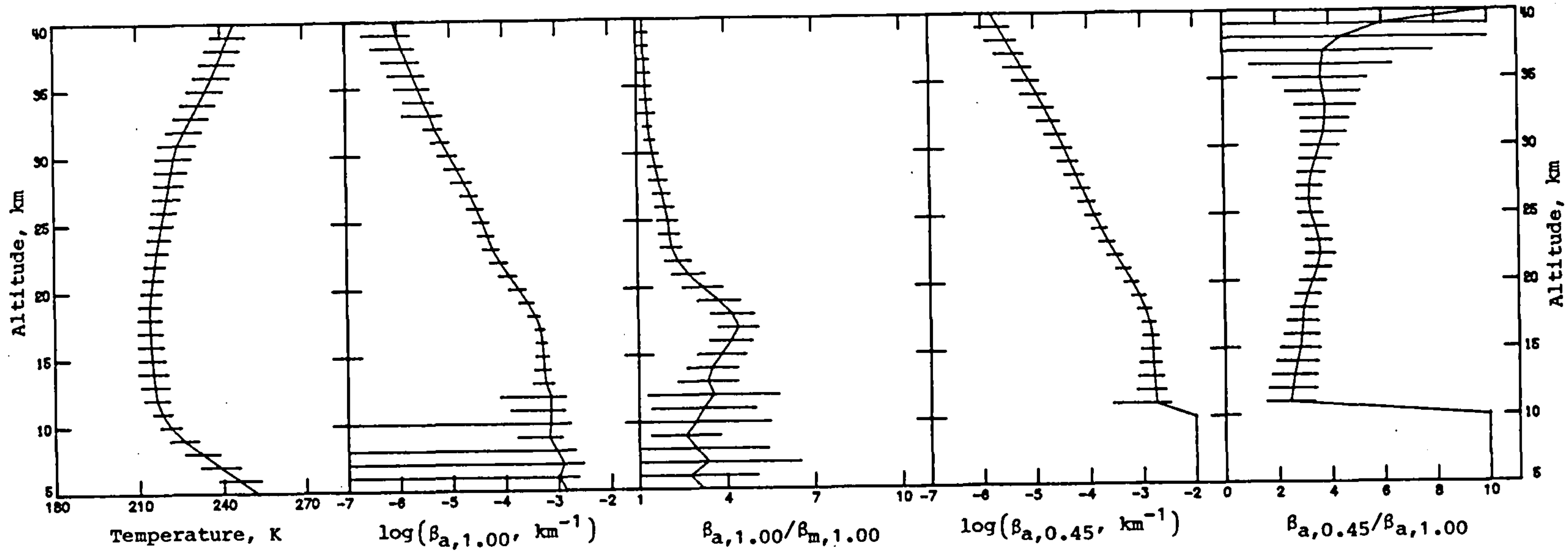


Figure 115. Average extinction and temperature profiles for latitude 45°N, December 13–December 20, 1980. Sunset events; sweep 20.

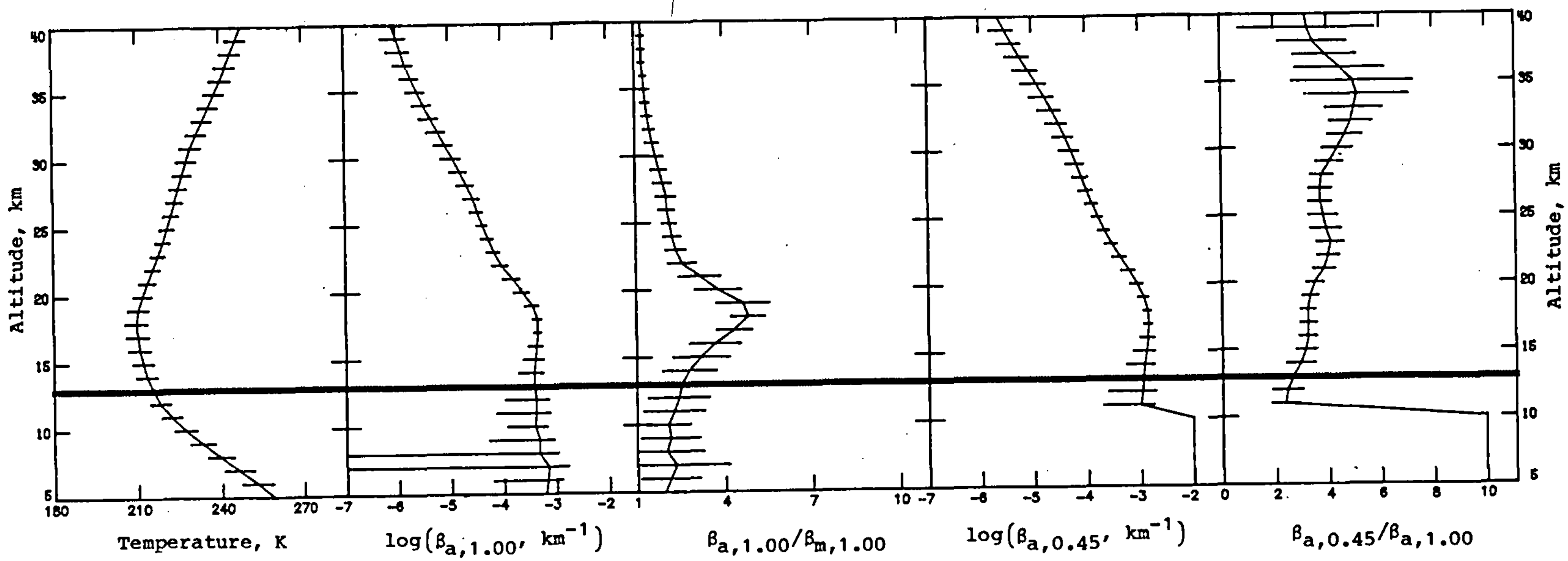


Figure 116. Average extinction and temperature profiles for latitude 35°N, December 20–December 23, 1980. Sunset events; sweep 20.

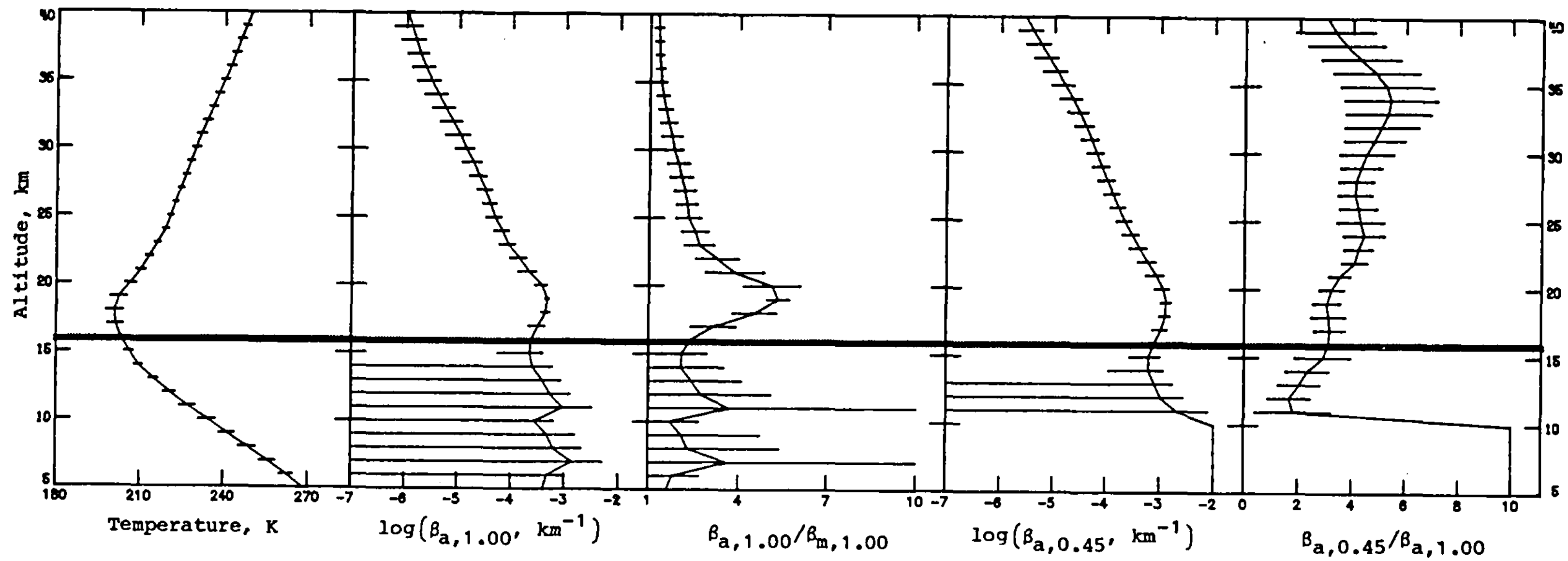
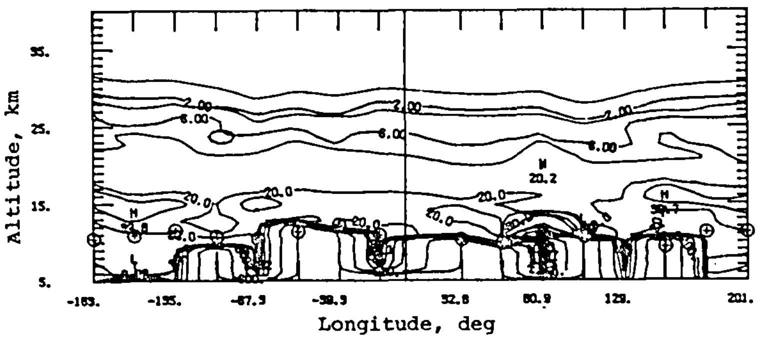
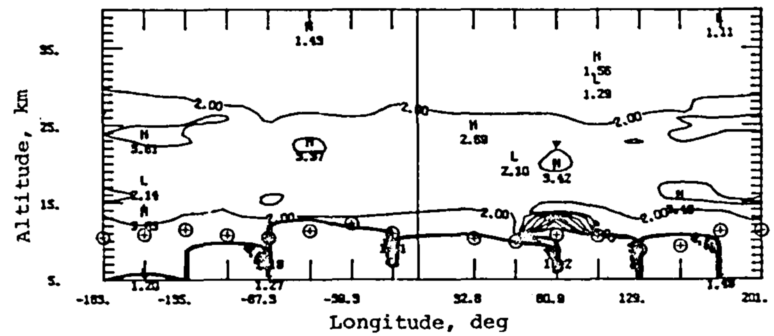


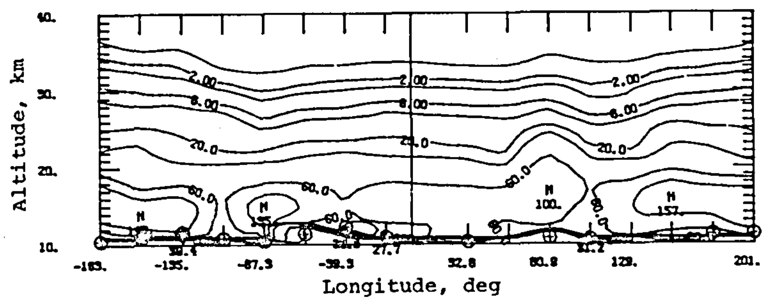
Figure 117. Average extinction and temperature profiles for latitude 25°N, December 23–December 24, 1980. Sunset events; sweep 20.



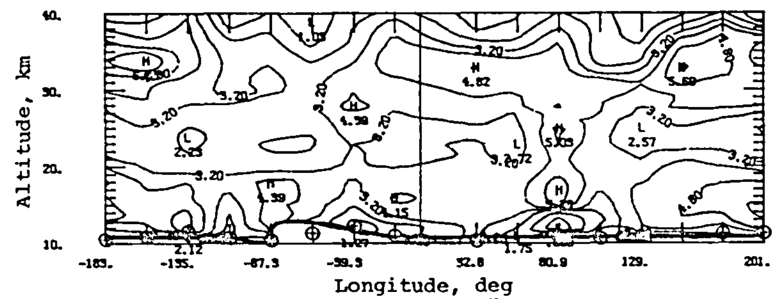
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



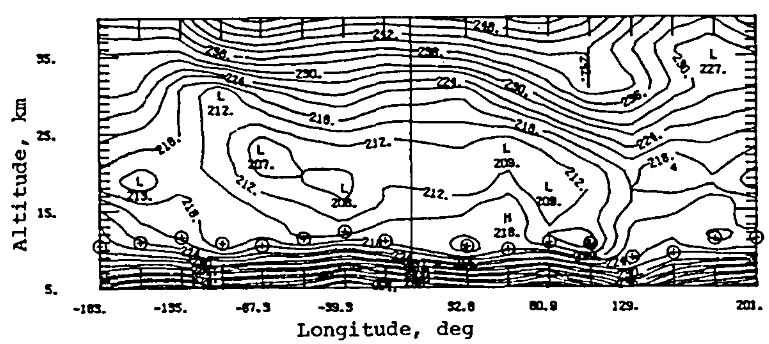
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

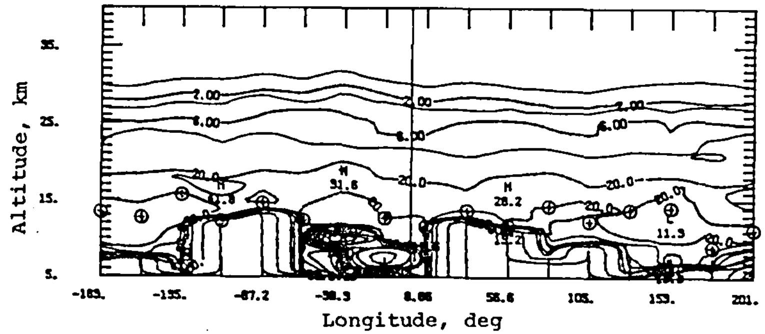


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

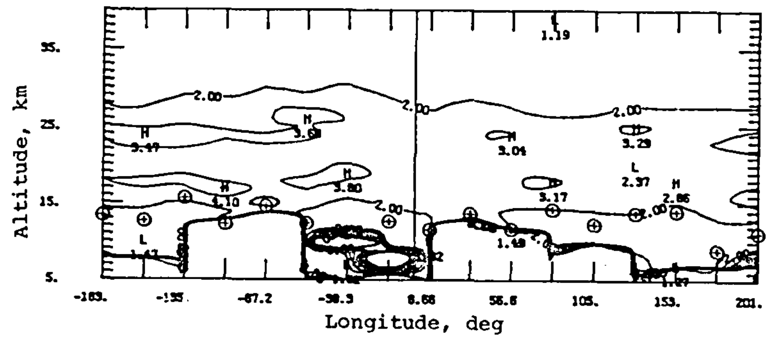


(e) Temperature (kelvin).

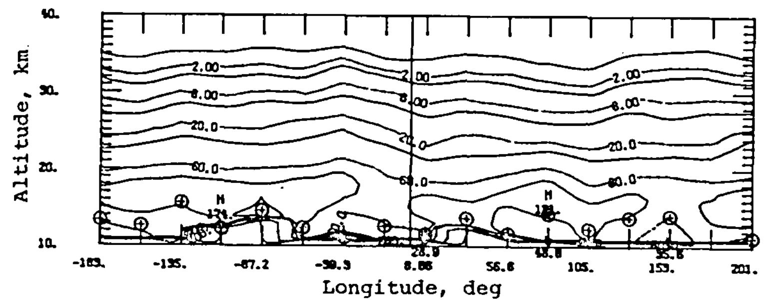
Figure 118. Extinction and temperature isopleths for sweep 10, sunset events, January 7.14–January 8.21, 1980, at 42.0°N to 39.9°N.



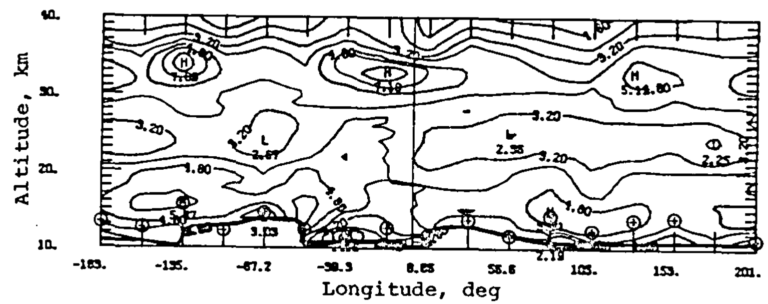
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



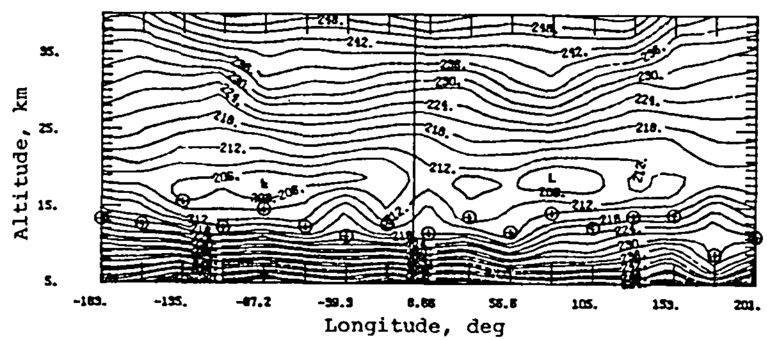
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

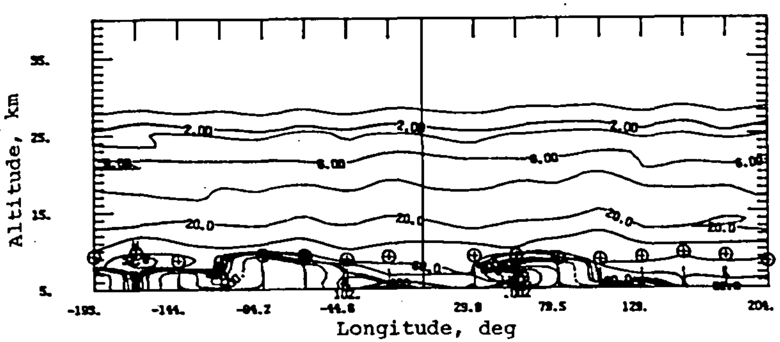


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

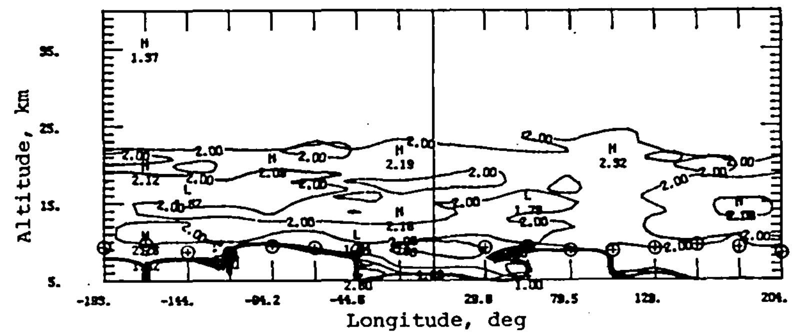


(e) Temperature (kelvin).

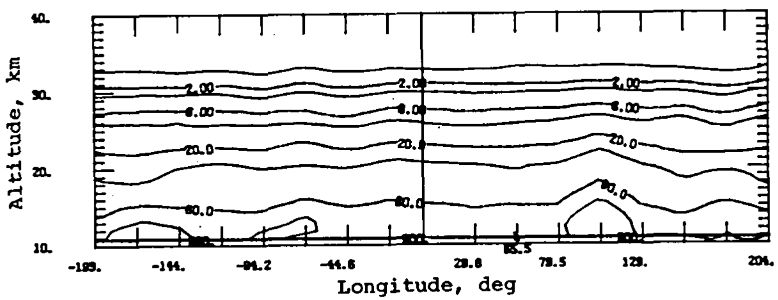
Figure 119. Extinction and temperature isopleths for sweep 10, sunset events, January 10.16–January 11.23, 1980, at 34.2°N to 29.6°N.



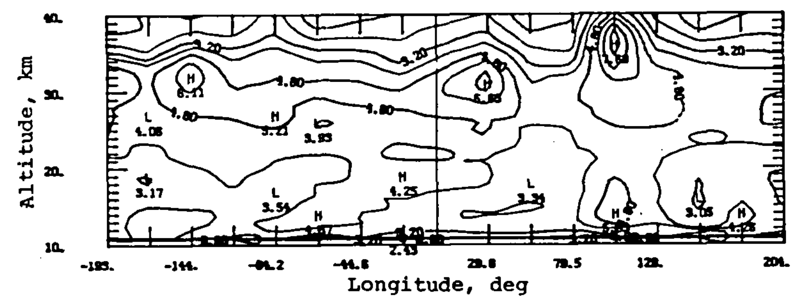
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



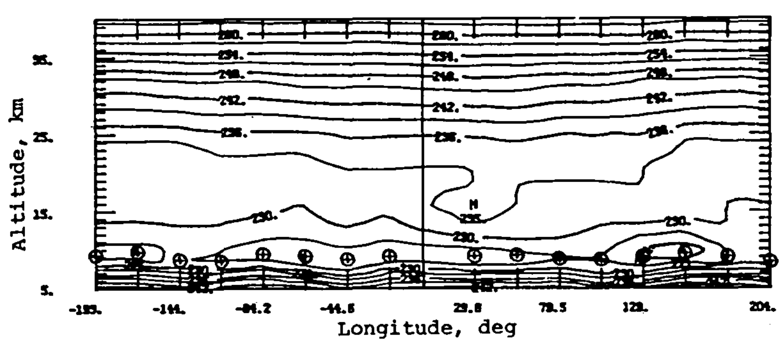
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

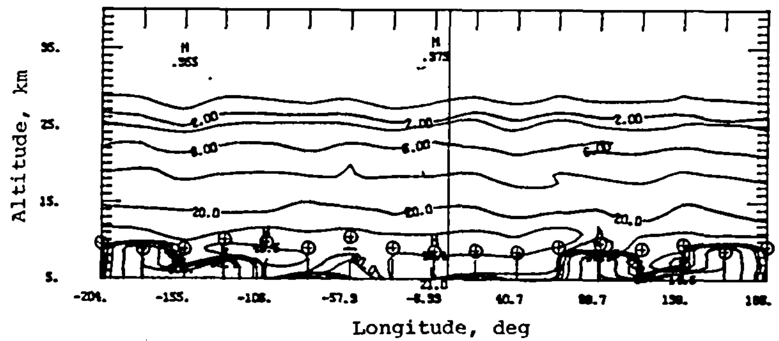


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

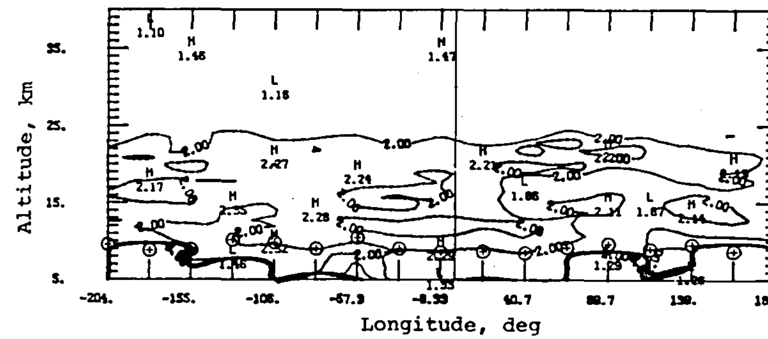


(e) Temperature (kelvin).

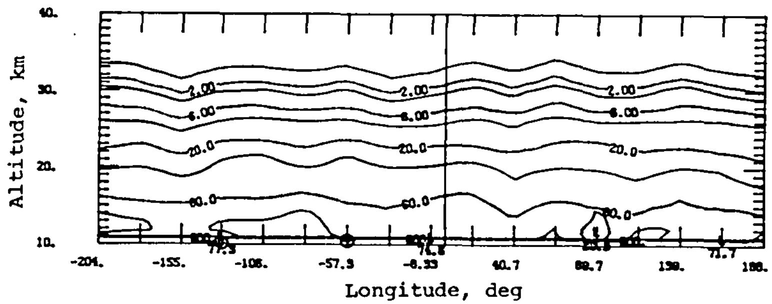
Figure 120. Extinction and temperature isopleths for sweep 11, sunset events, January 28.41–January 29.49, 1980, at 71.2°S to 70.5°S.



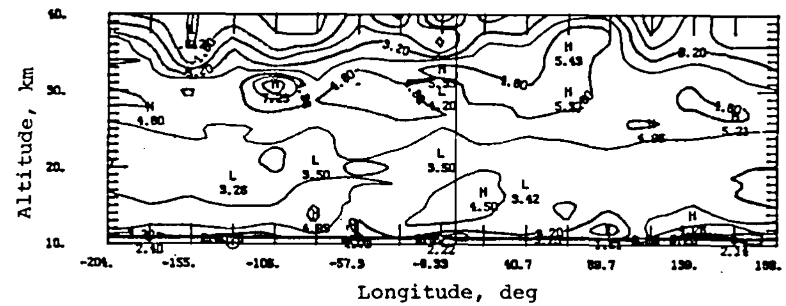
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



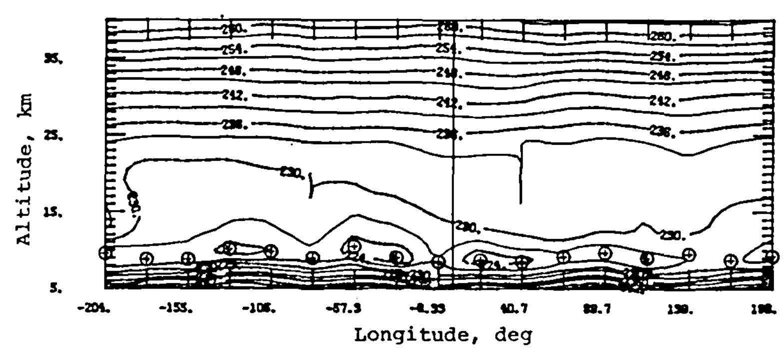
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

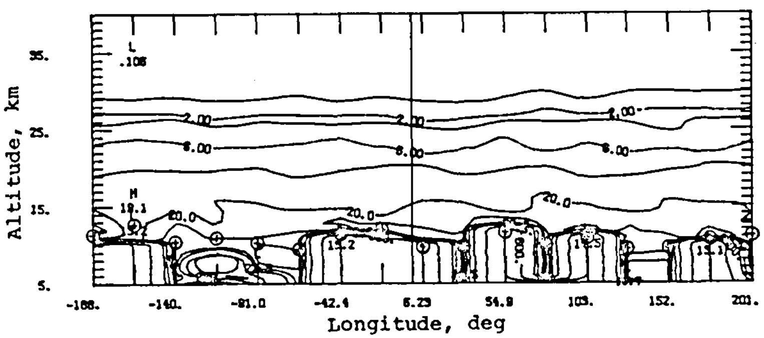


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

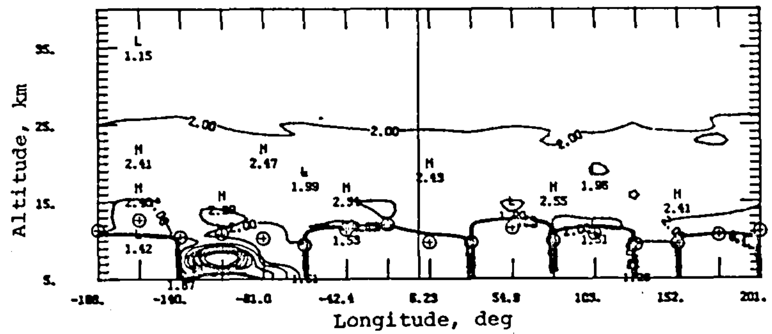


(e) Temperature (kelvin).

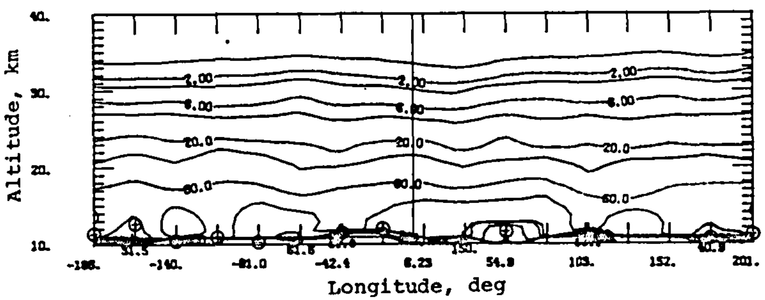
Figure 121. Extinction and temperature isopleths for sweep 11, sunset events, February 1.37–February 2.44, 1980, at 66.6°S to 64.7°S.



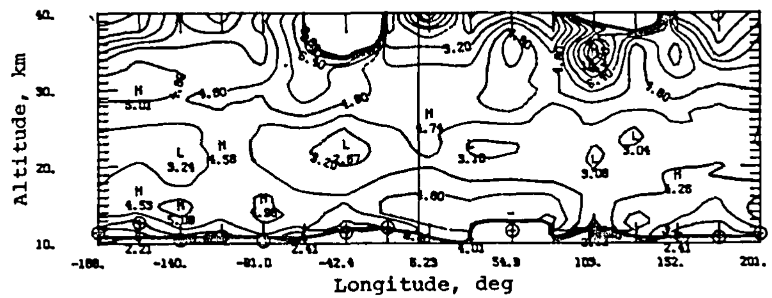
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



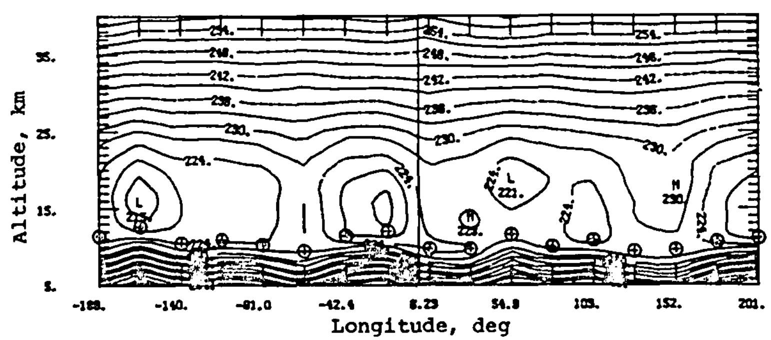
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

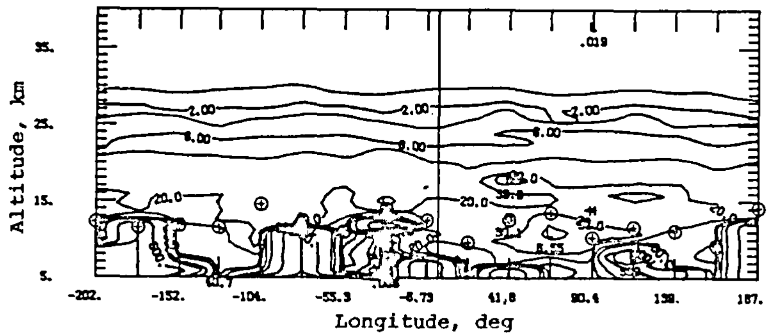


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

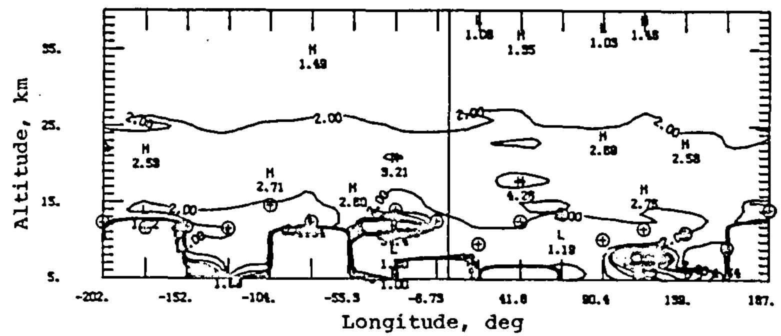


(e) Temperature (kelvin).

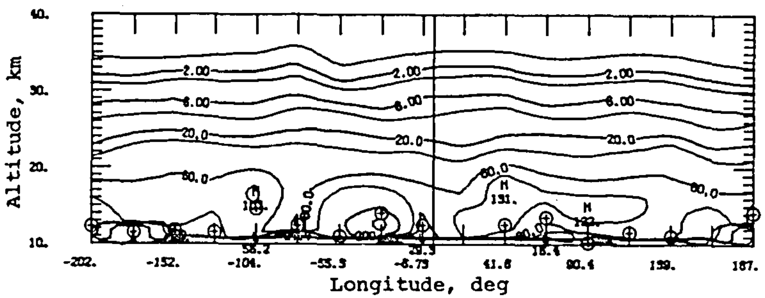
Figure 122. Extinction and temperature isopleths for sweep 11, sunset events, February 7.27–February 8.34, 1980, at 54.1°S to 51.2°S.



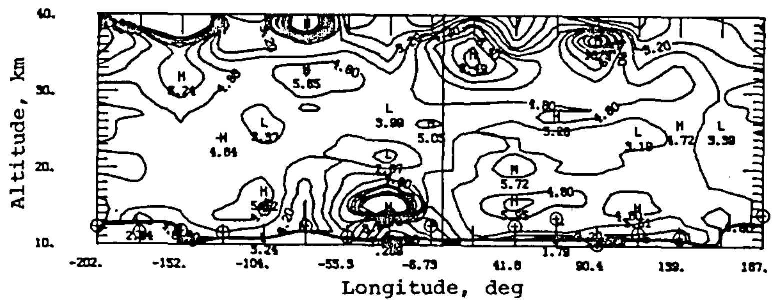
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



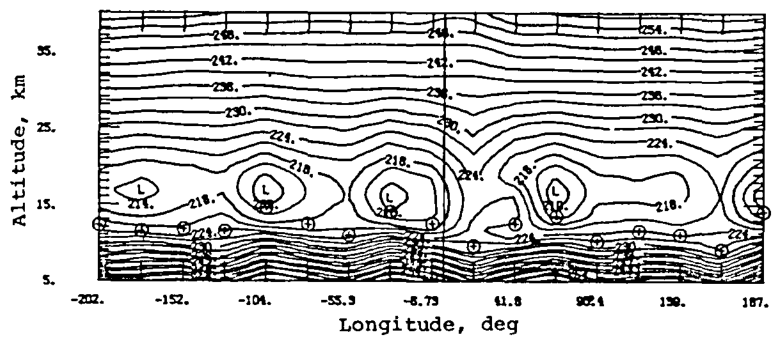
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

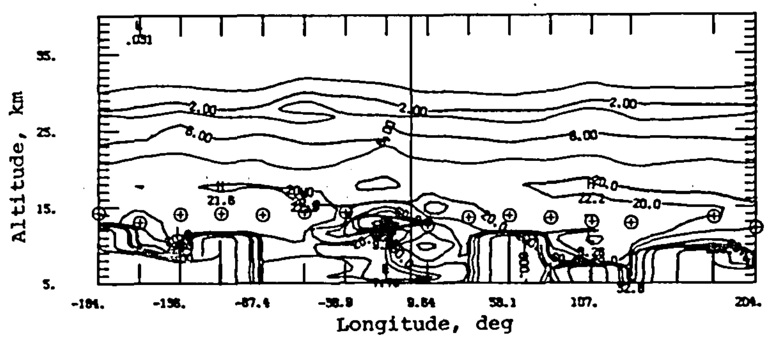


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

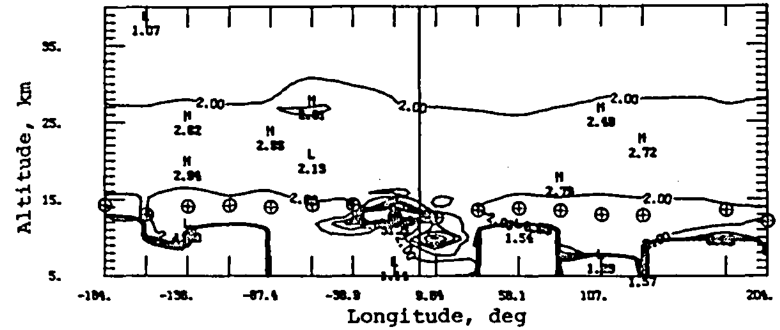


(e) Temperature (kelvin).

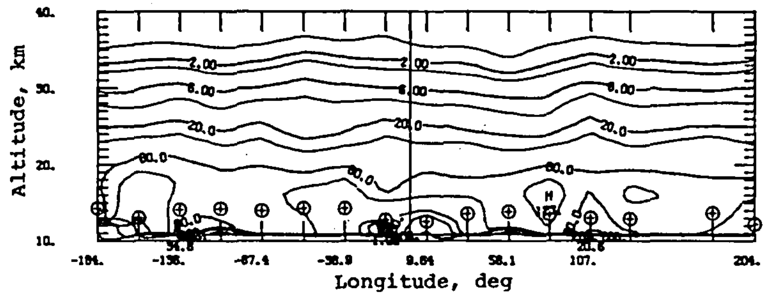
Figure 123. Extinction and temperature isopleths for sweep 11, sunset events, February 10.28–February 11.36, 1980, at 45.5°S to 41.5°S.



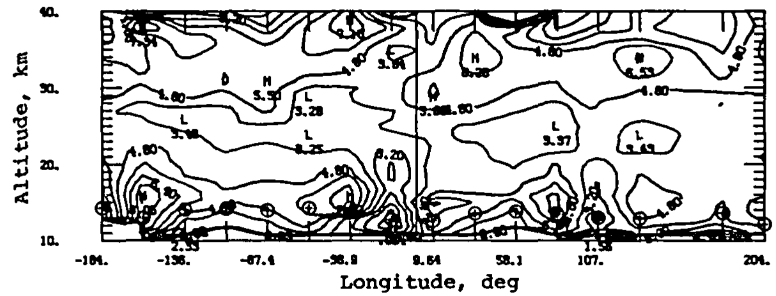
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



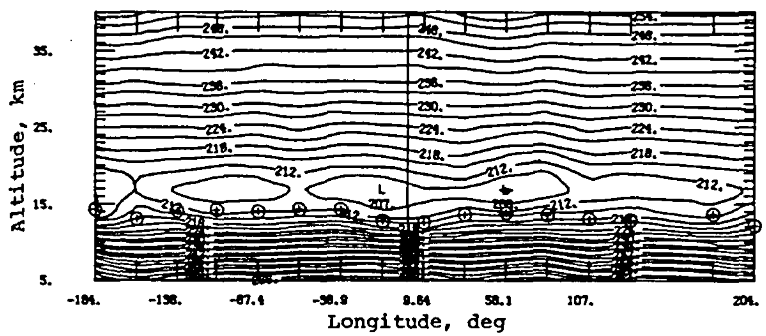
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}

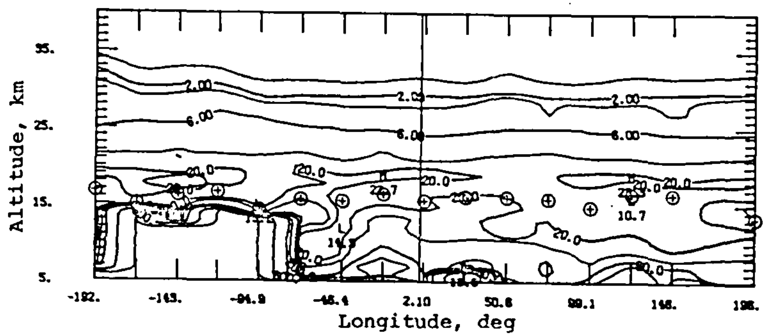


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

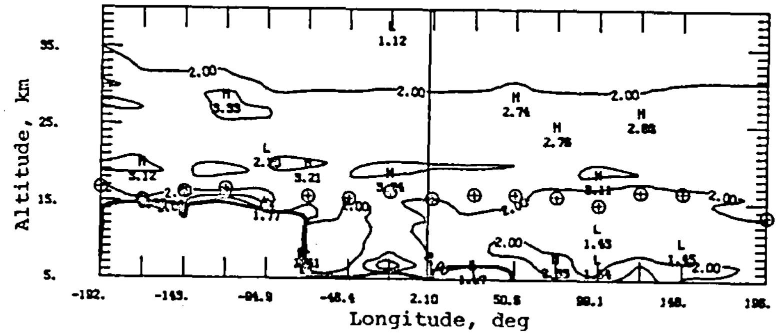


(e) Temperature (kelvin).

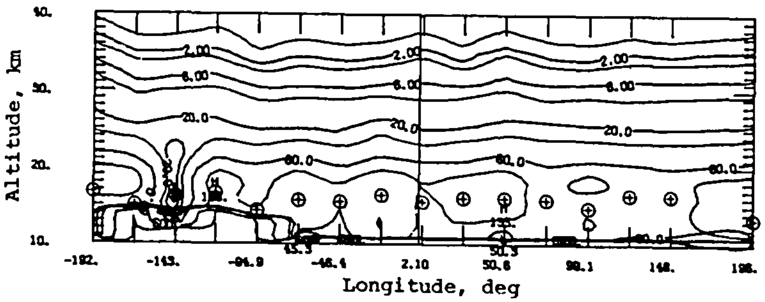
Figure 124. Extinction and temperature isopleths for sweep 11, sunset events, February 12.23–February 13.30, 1980, at 38.8°S to 34.7°S.



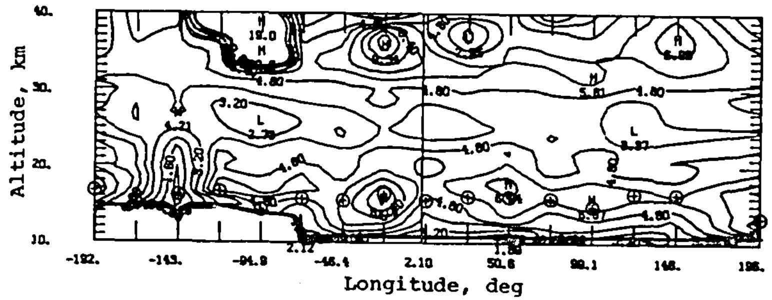
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



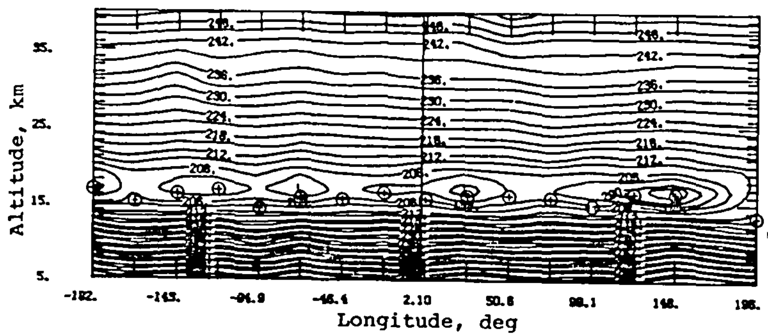
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

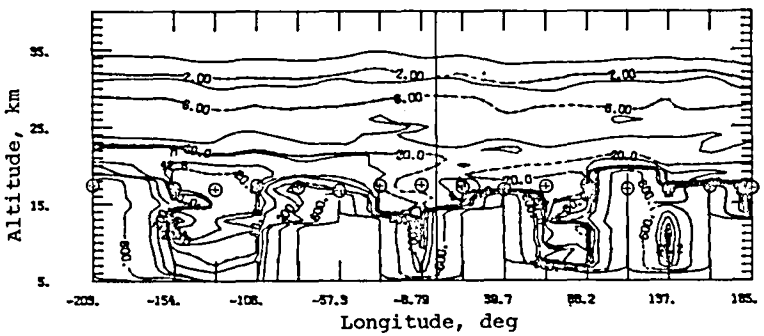


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

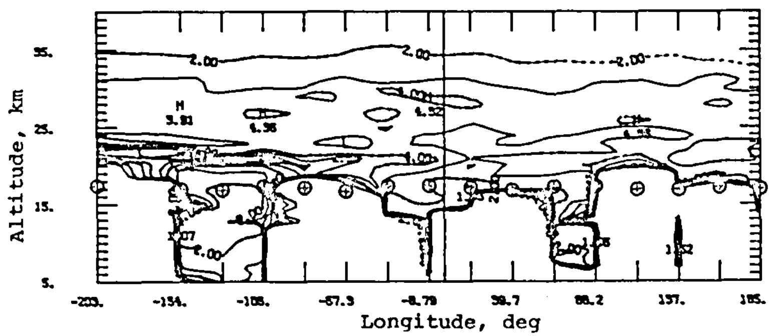


(e) Temperature (kelvin).

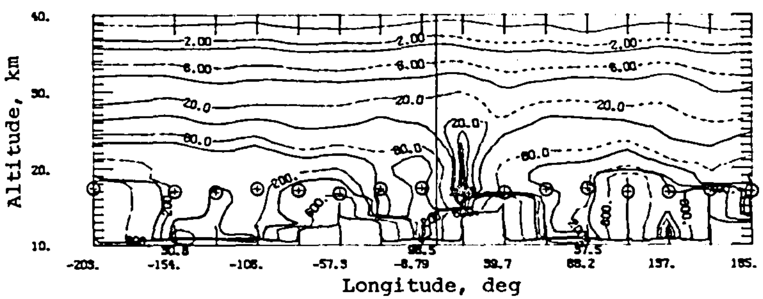
Figure 125. Extinction and temperature isopleths for sweep 11, sunset events, February 14.24–February 15.31, 1980, at 30.8°S to 26.0°S.



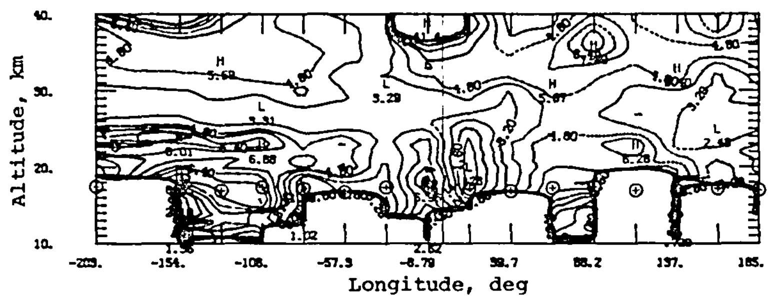
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



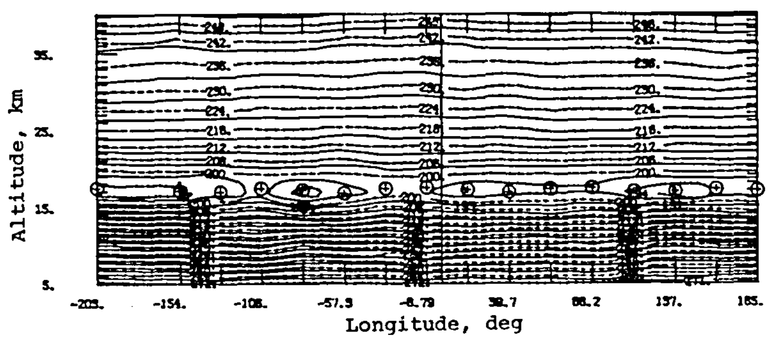
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

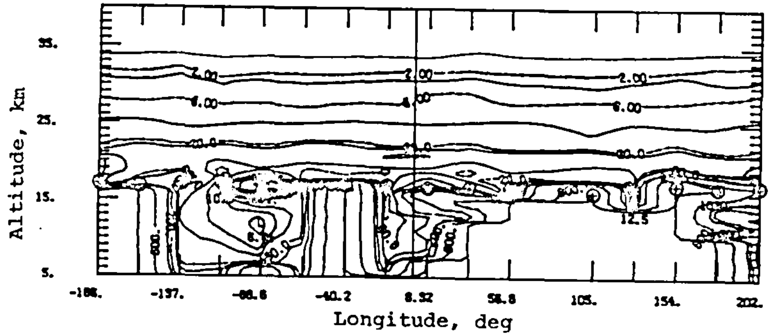


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

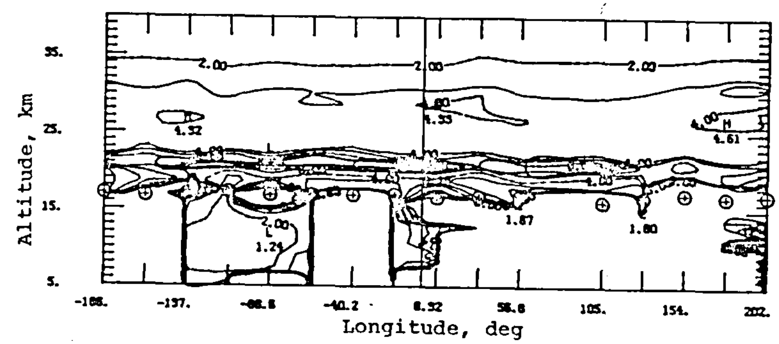


(e) Temperature (kelvin).

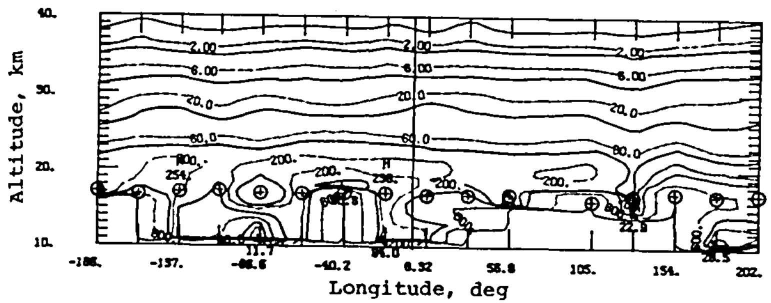
Figure 126. Extinction and temperature isopleths for sweep 11, sunset events, February 17.26–February 18.33, 1980, at 16.1°S to 10.1°S.



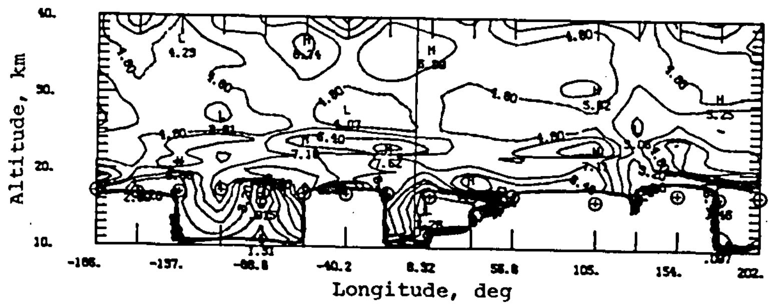
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



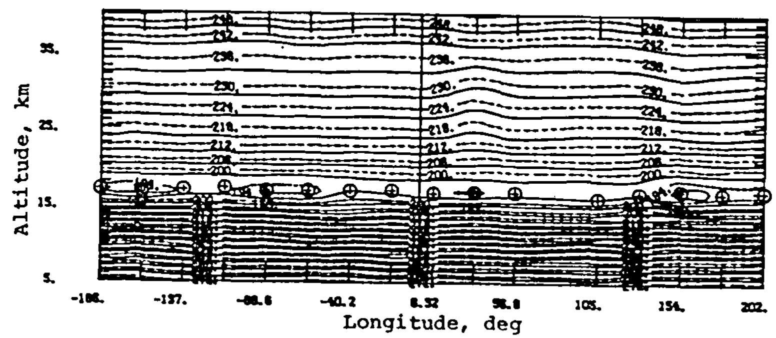
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

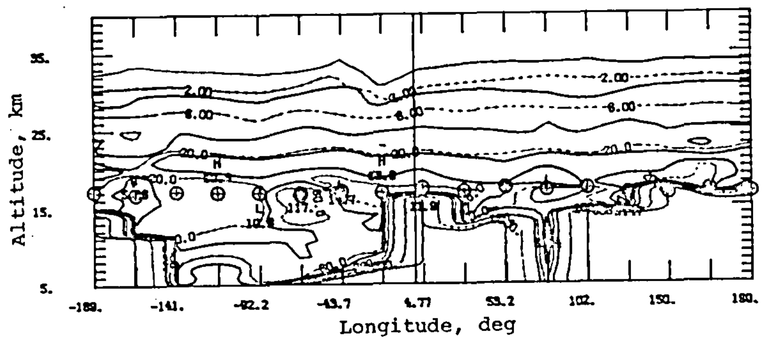


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

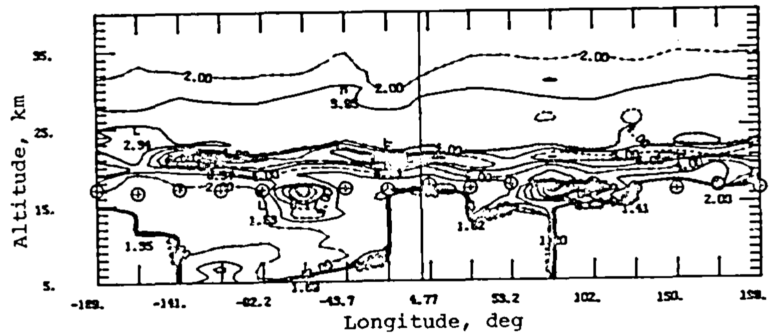


(e) Temperature (kelvin).

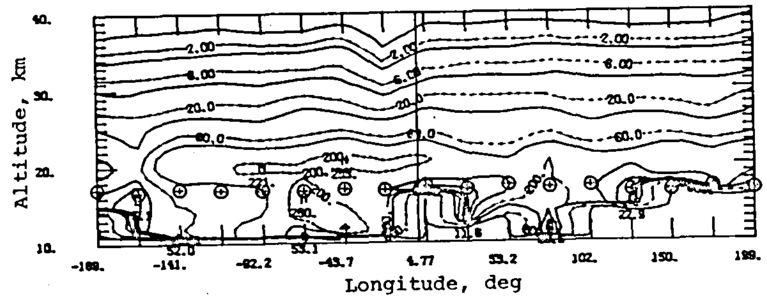
Figure 127. Extinction and temperature isopleths for sweep 11, sunset events, February 19.20–February 20.28, 1980, at 4.8°S to 1.9°N.



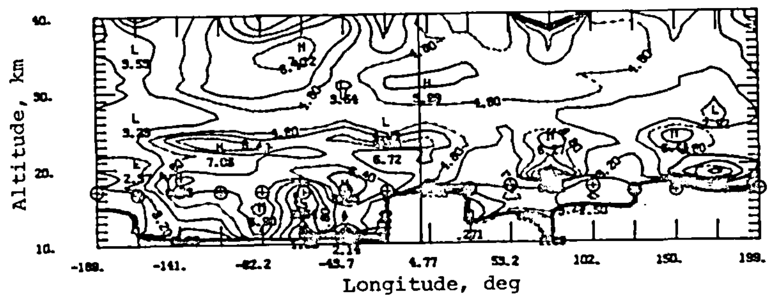
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



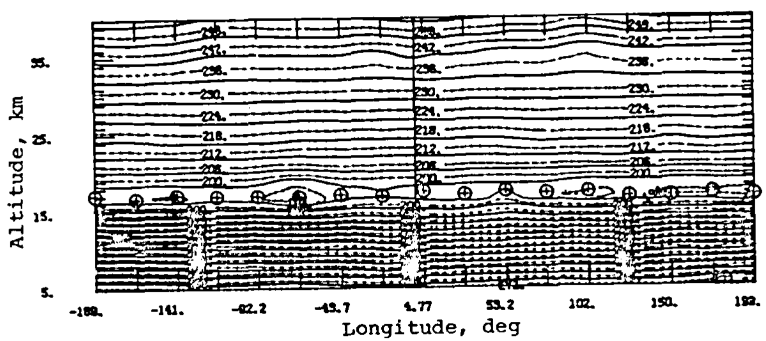
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

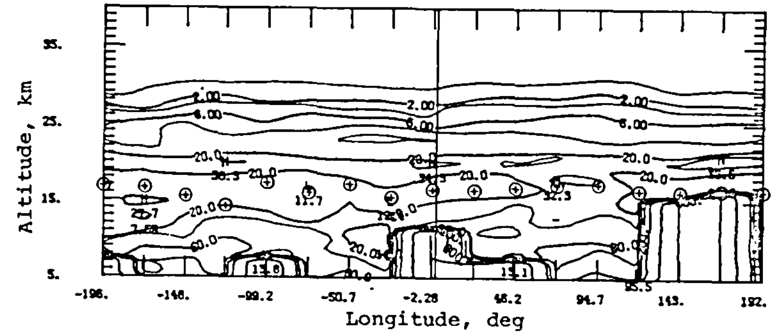


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

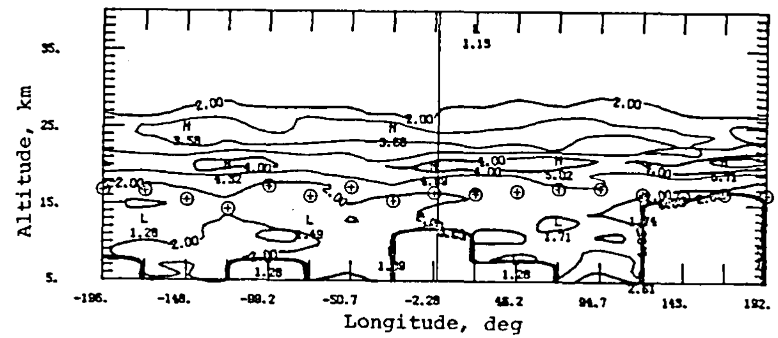


(e) Temperature (kelvin).

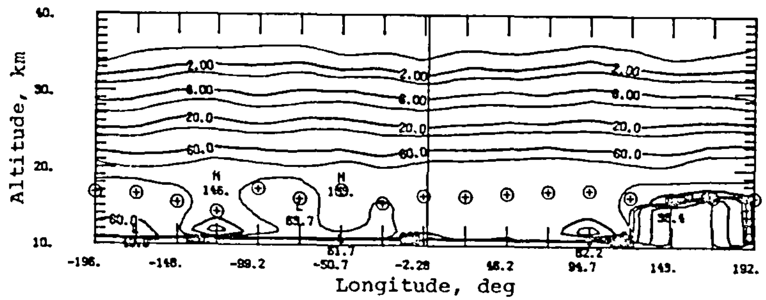
Figure 128. Extinction and temperature isopleths for sweep 11, sunset events, February 20.21–February 21.28, 1980, at 1.5°N to 8.5°N.



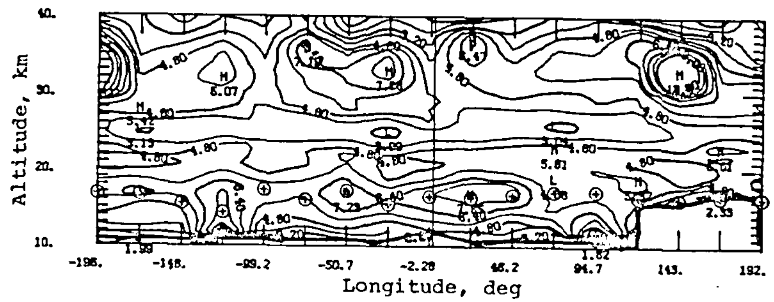
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



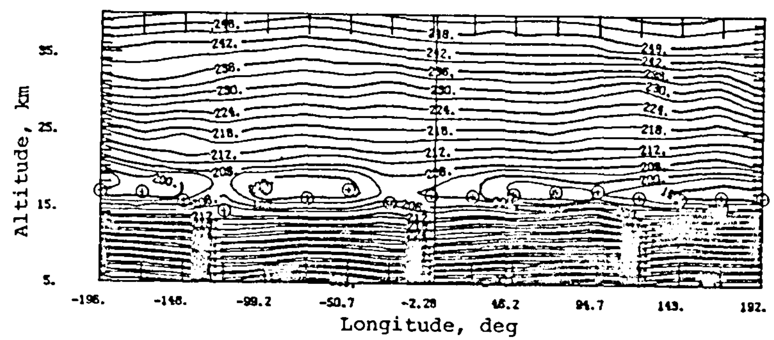
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

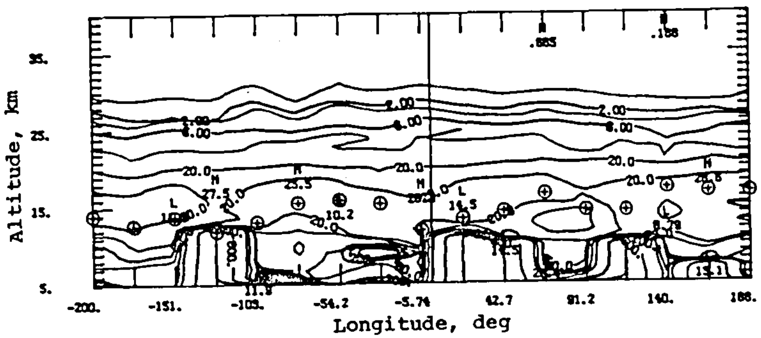


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

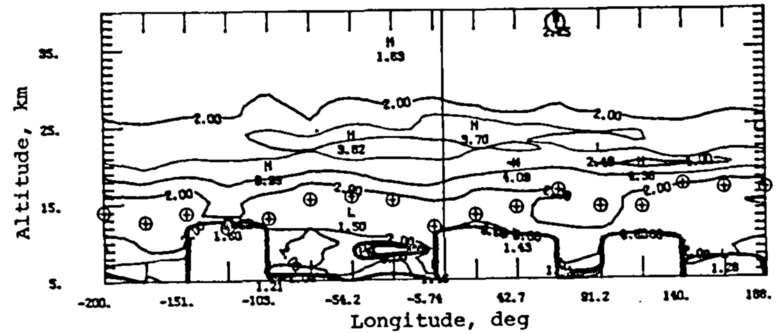


(e) Temperature (kelvin).

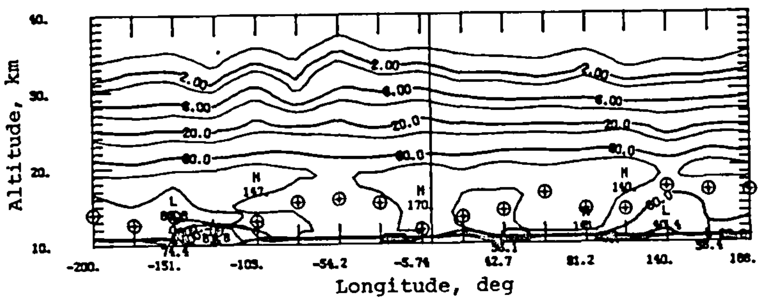
Figure 129. Extinction and temperature isopleths for sweep 11, sunset events, February 22.22–February 23.29, 1980, at 14.7°N to 21.7°N.



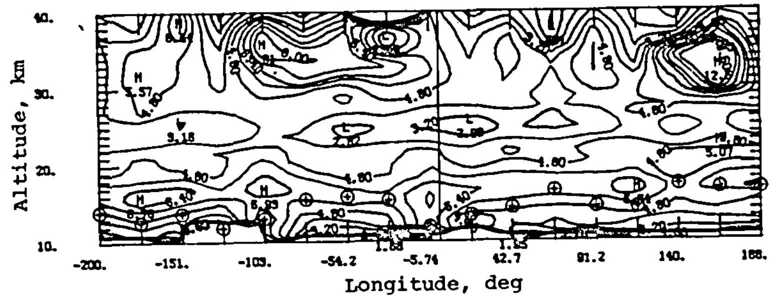
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



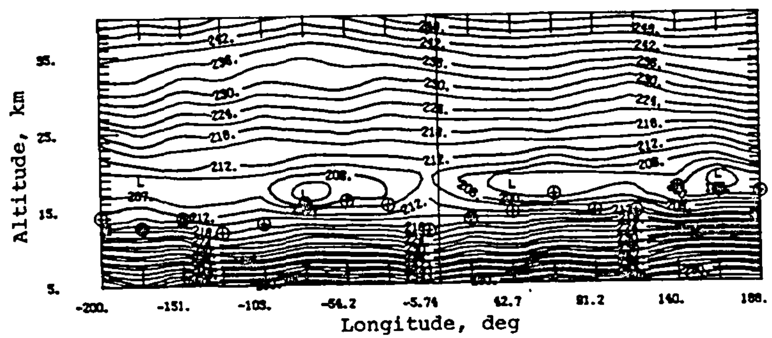
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

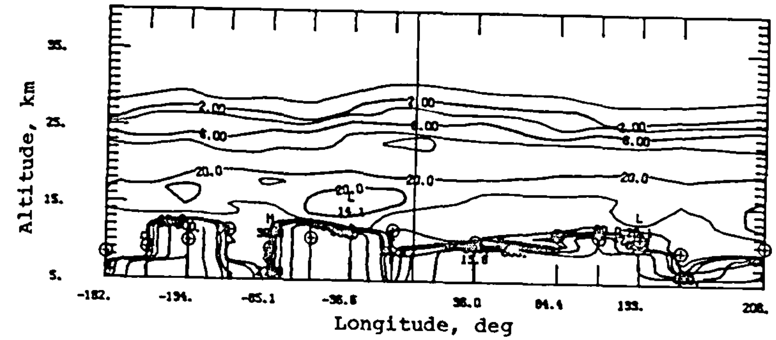


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

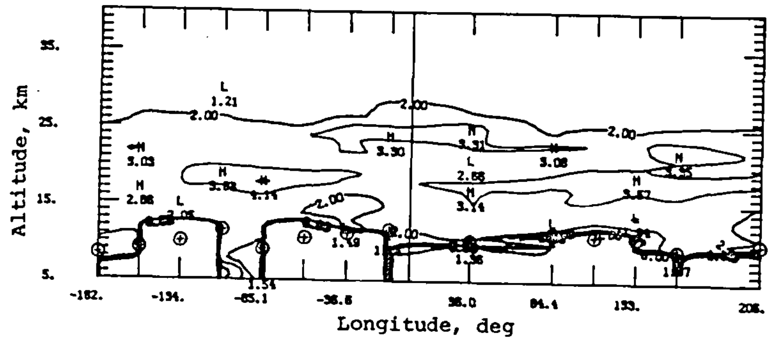


(e) Temperature (kelvin).

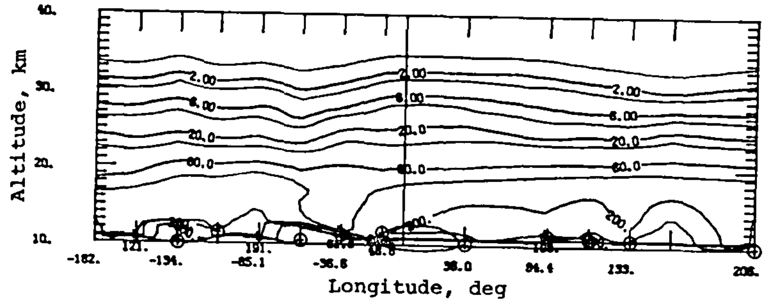
Figure 130. Extinction and temperature isopleths for sweep 11, sunset events, February 23.23–February 24.30, 1980, at 21.2°N to 27.9°N.



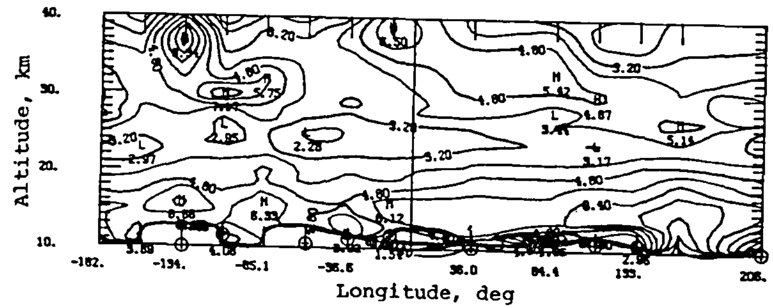
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



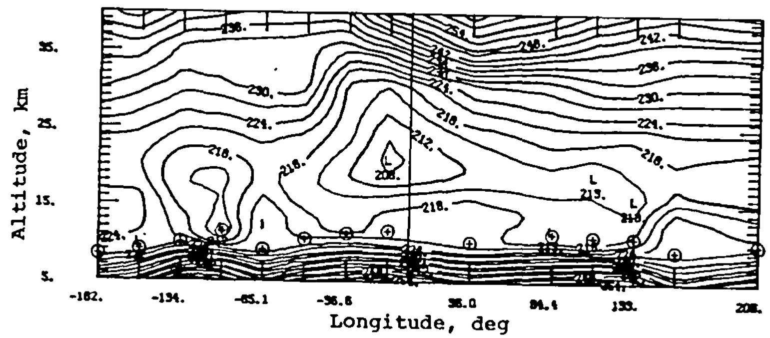
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

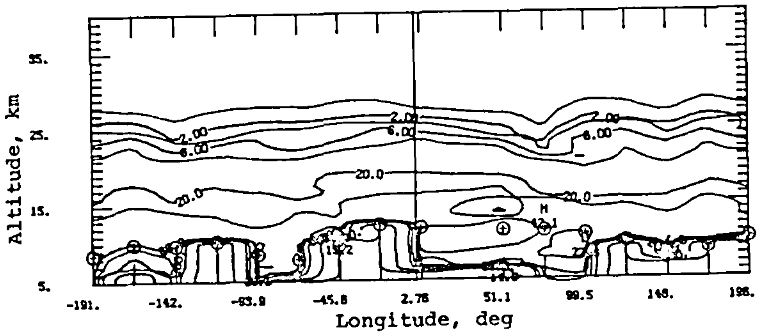


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

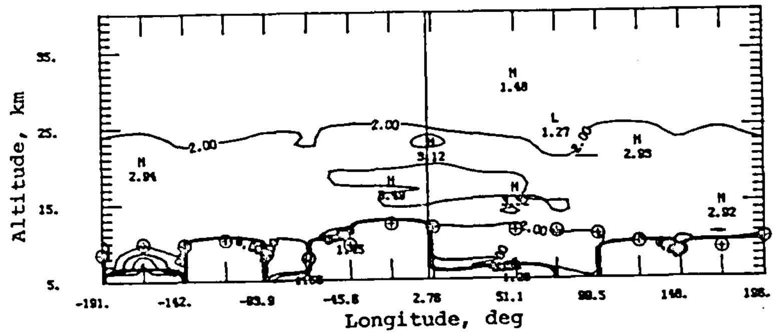


(e) Temperature (kelvin).

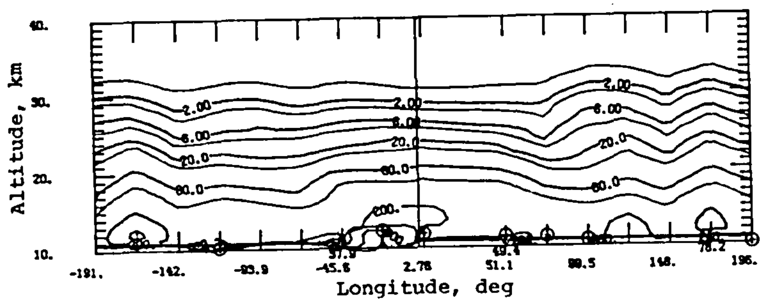
Figure 131. Extinction and temperature isopleths for sweep 11, sunset events, February 25.17–February 26.25, 1980, at 32.9°N to 38.4°N.



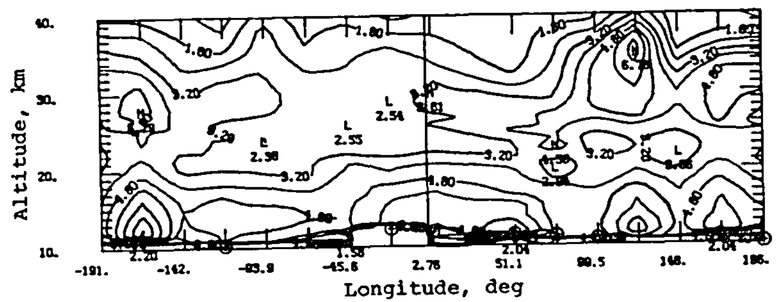
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



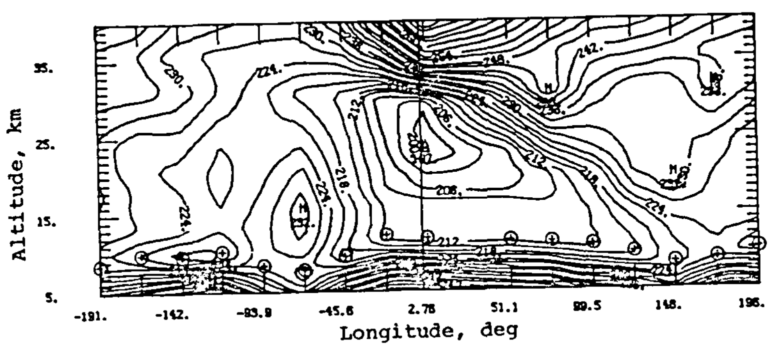
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

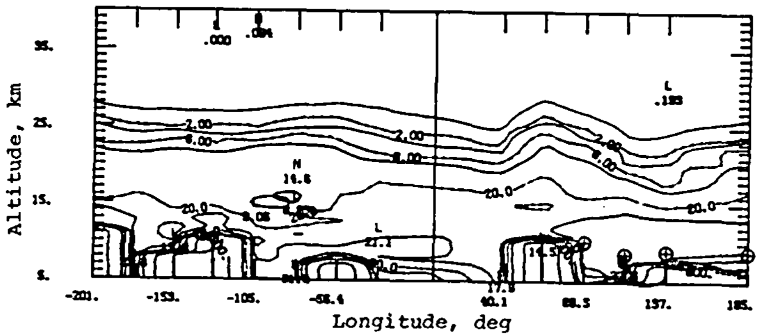


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

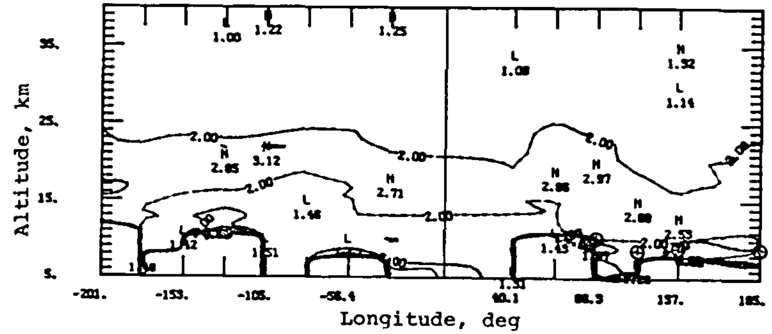


(e) Temperature (kelvin).

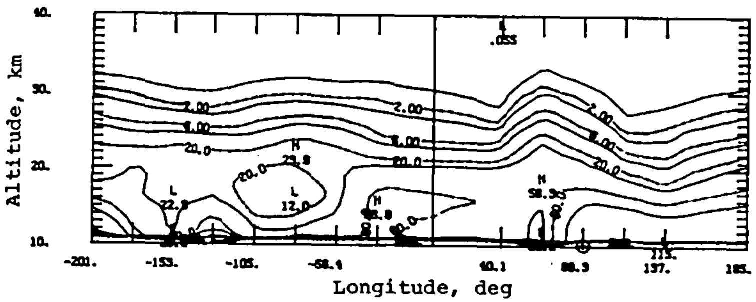
Figure 132. Extinction and temperature isopleths for sweep 11, sunset events, February 28.19–February 29.26, 1980, at 46.5°N to 49.9°N.



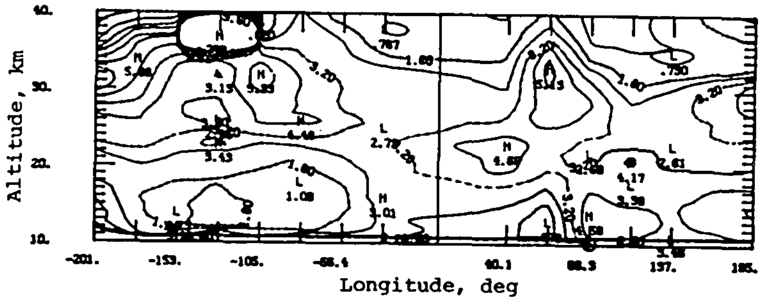
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



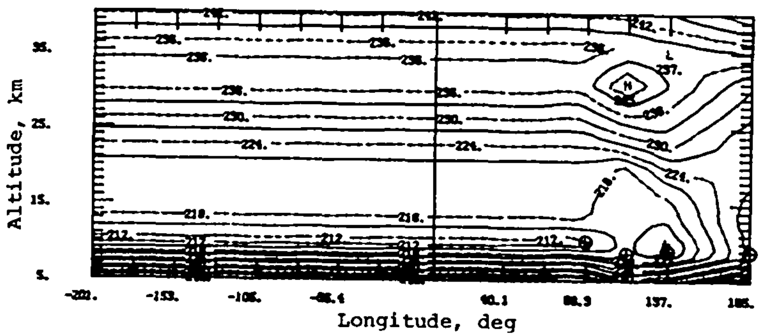
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

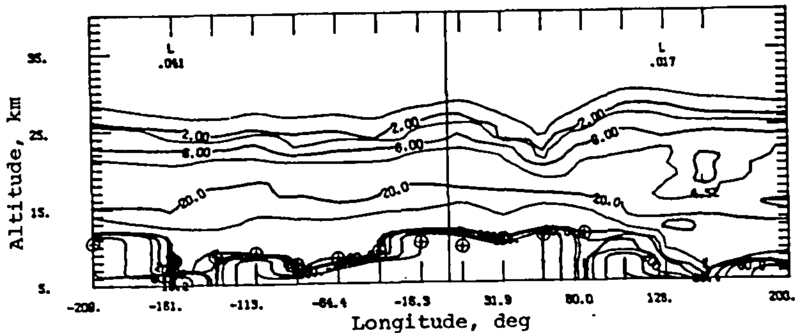


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

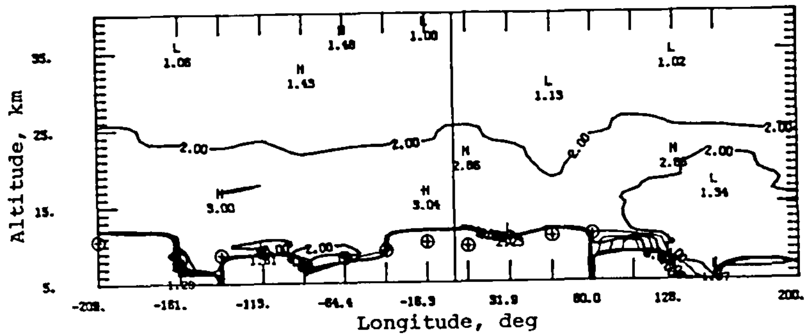


(e) Temperature (kelvin).

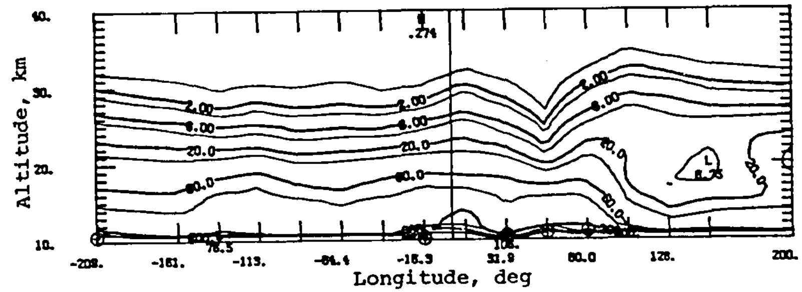
Figure 133. Extinction and temperature isopleths for sweep 11, sunset events, March 4.22–March 5.29, 1980, at 57.0°N to 57.7°N.



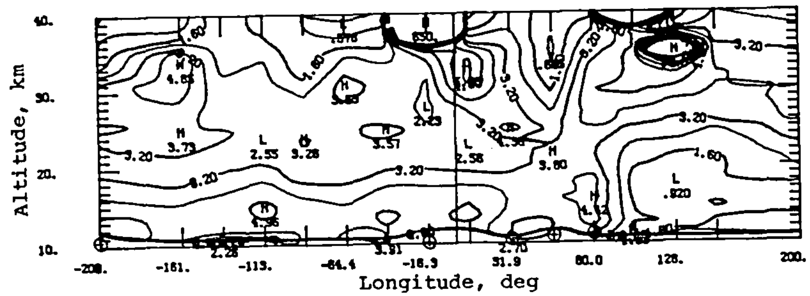
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



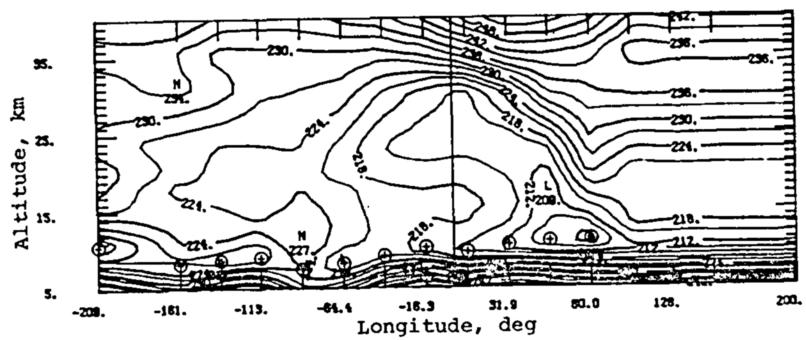
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

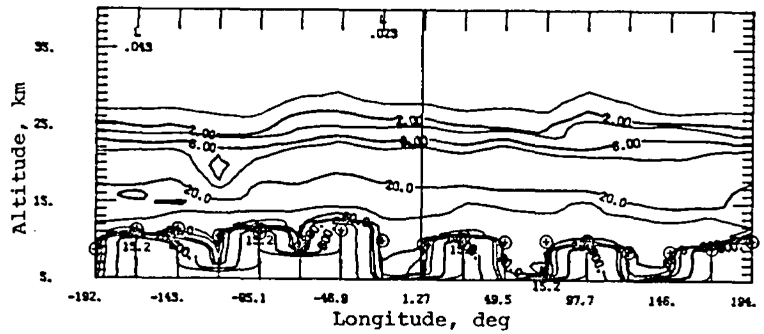


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

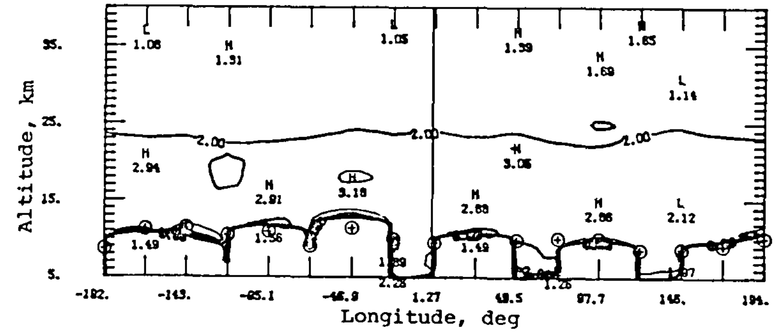


(e) Temperature (kelvin).

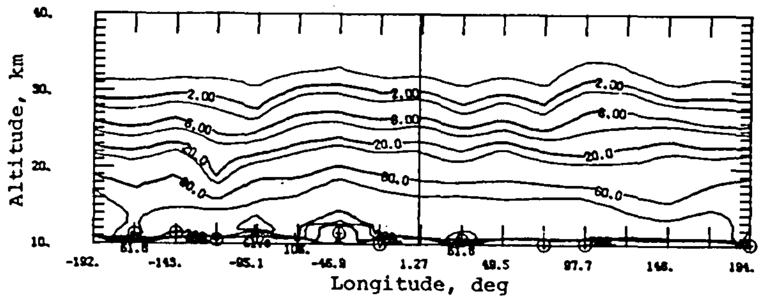
Figure 134. Extinction and temperature isopleths for sweep 12, sunset events, March 10.18–March 11.32, 1980, at 56.7°N to 55.5°N.



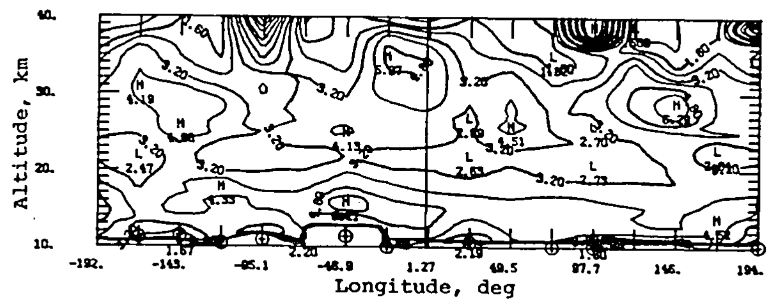
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



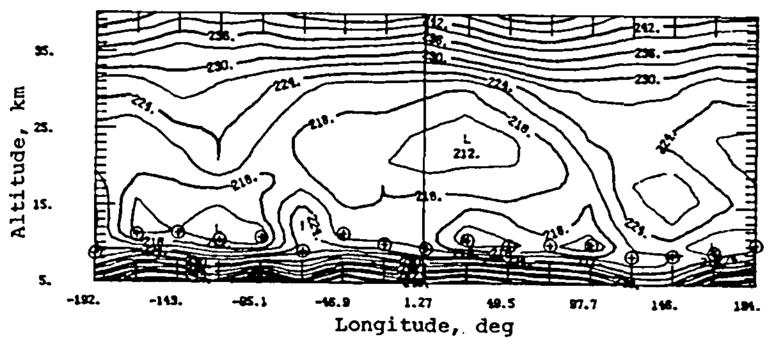
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

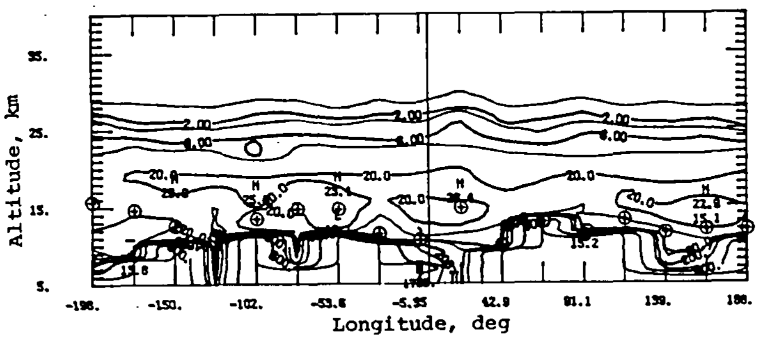


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

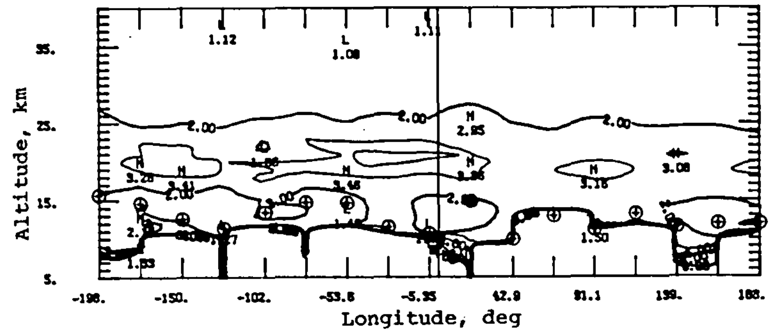


(e) Temperature (kelvin).

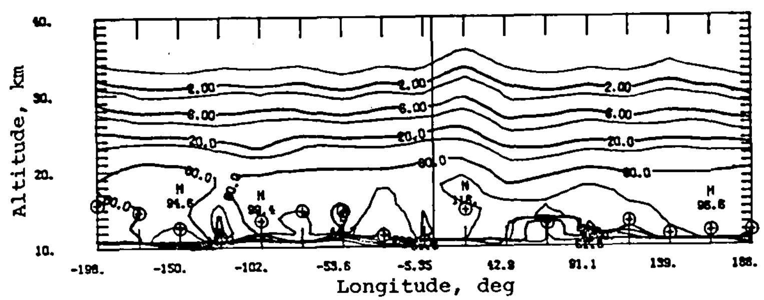
Figure 135. Extinction and temperature isopleths for sweep 12, sunset events, March 15.21–March 16.28, 1980, at 48.8°N to 46.0°N.



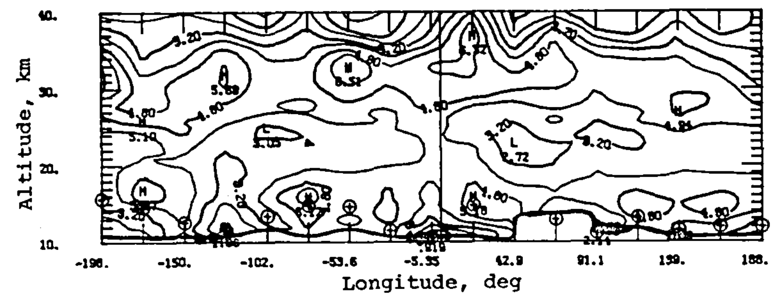
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



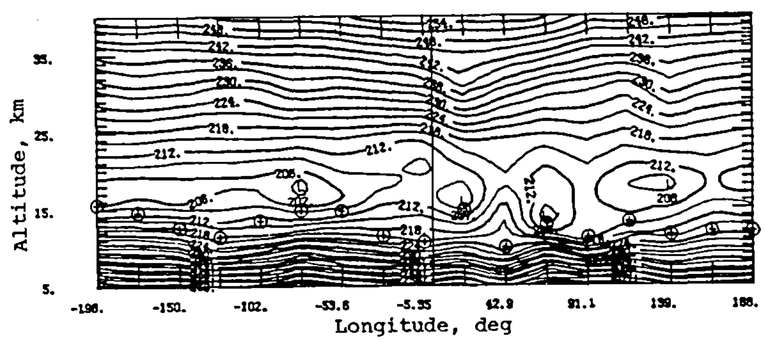
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

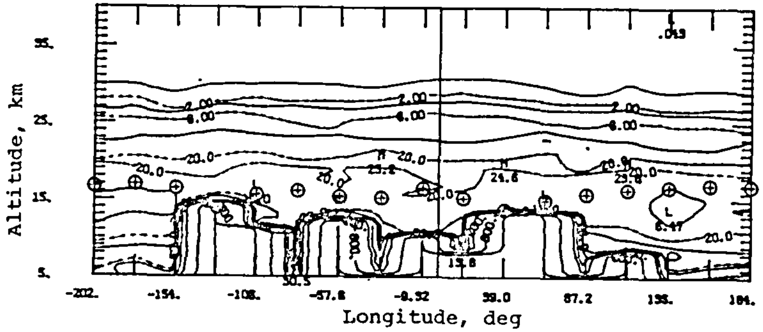


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

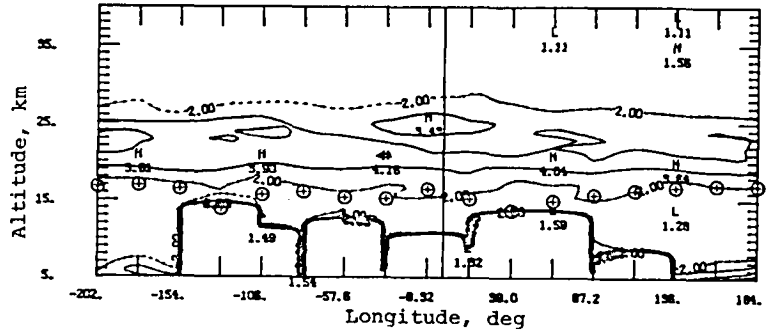


(e) Temperature (kelvin).

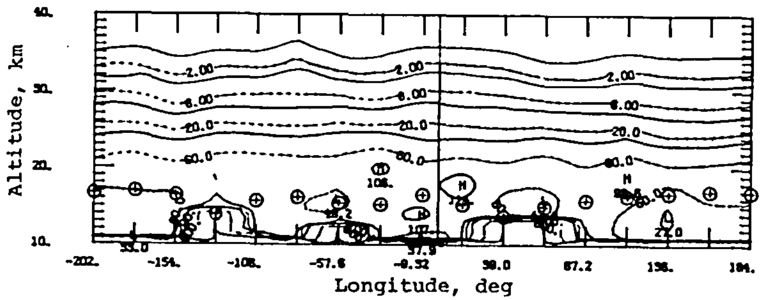
Figure 136. Extinction and temperature isopleths for sweep 12, sunset events, March 19.23–March 20.31, 1980, at 36.2°N to 31.7°N.



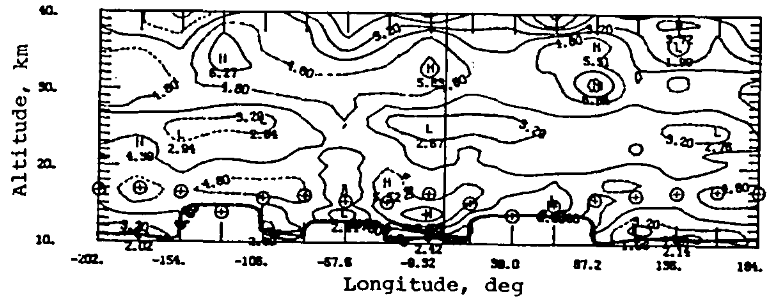
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



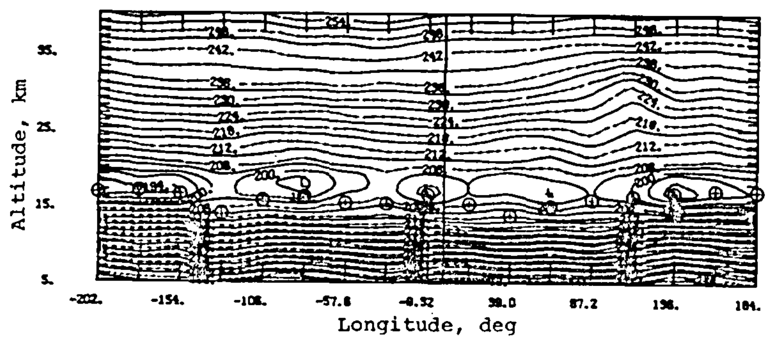
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

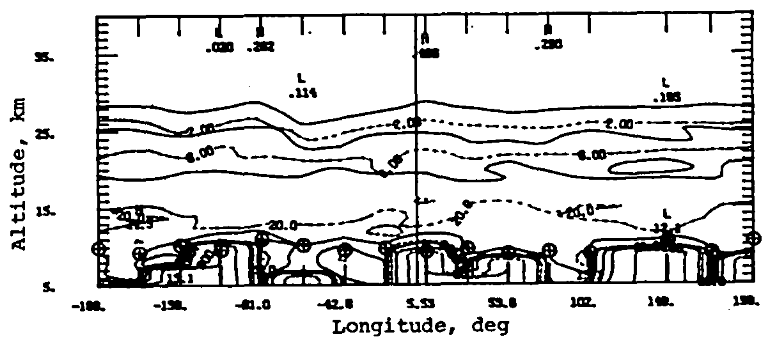


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

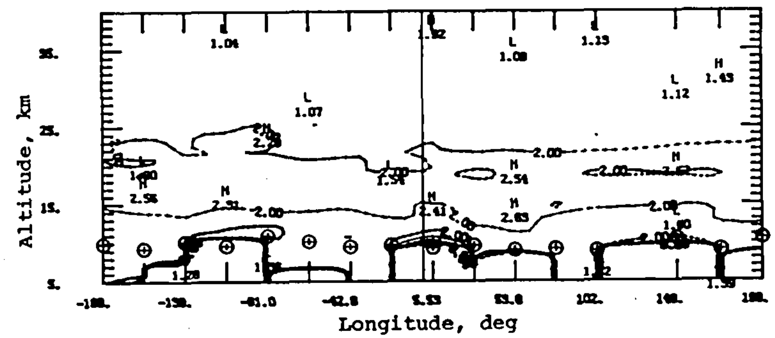


(e) Temperature (kelvin).

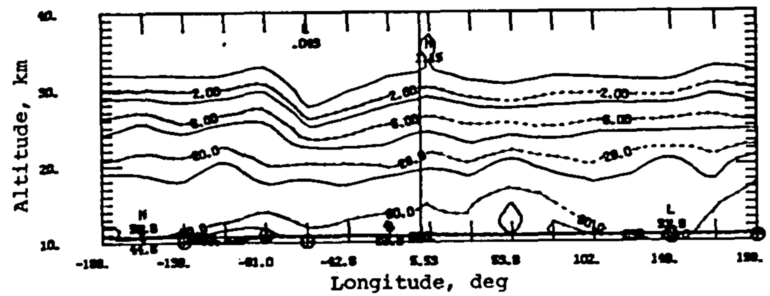
Figure 137. Extinction and temperature isopleths for sweep 12, sunset events, March 21.25–March 22.32, 1980, at 27.2°N to 21.3°N.



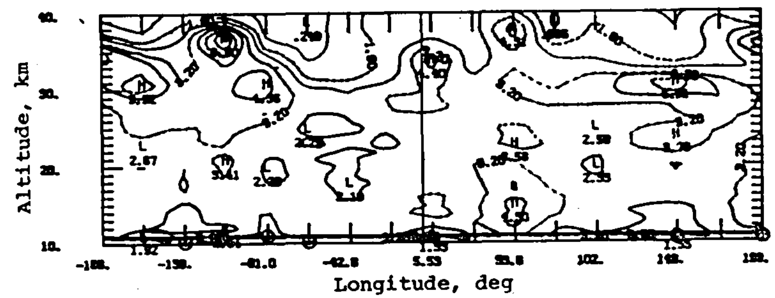
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



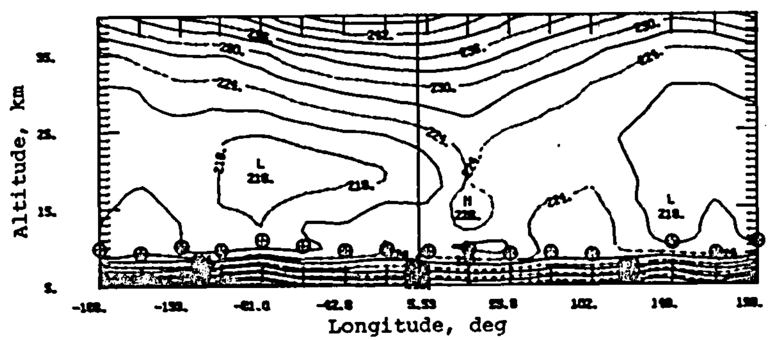
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

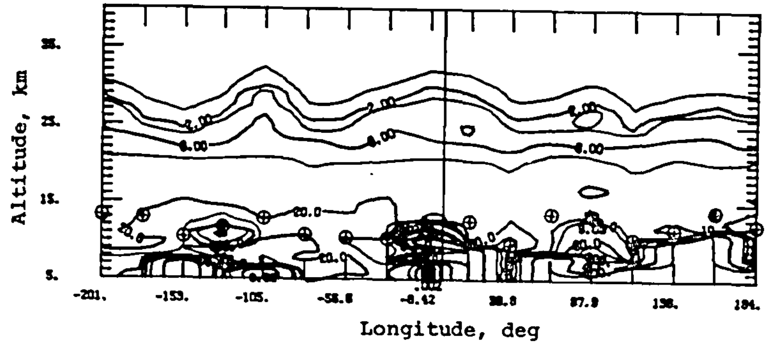


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

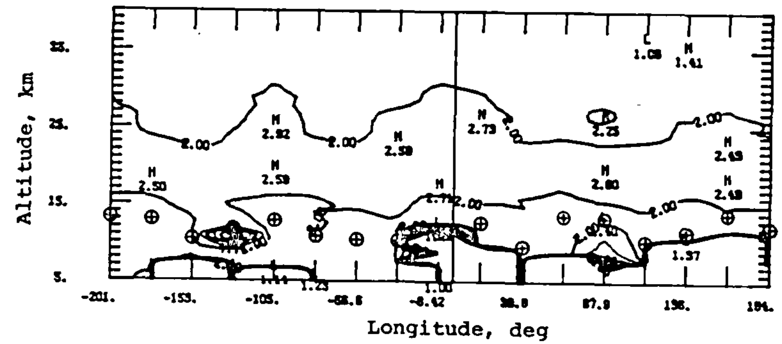


(e) Temperature (kelvin).

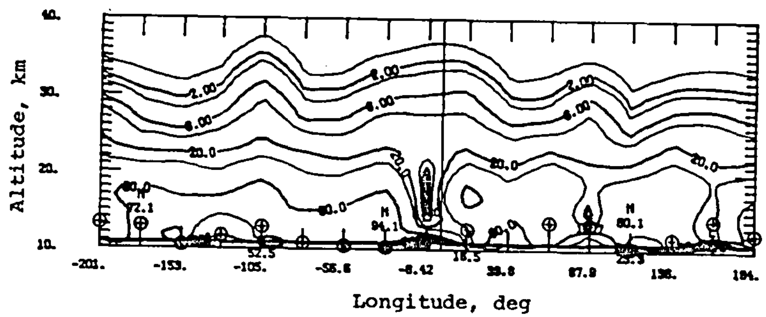
Figure 138. Extinction and temperature isopleths for sweep 13, sunset events, April 11.17–April 12.24, 1980, at 56.5°S to 55.9°S.



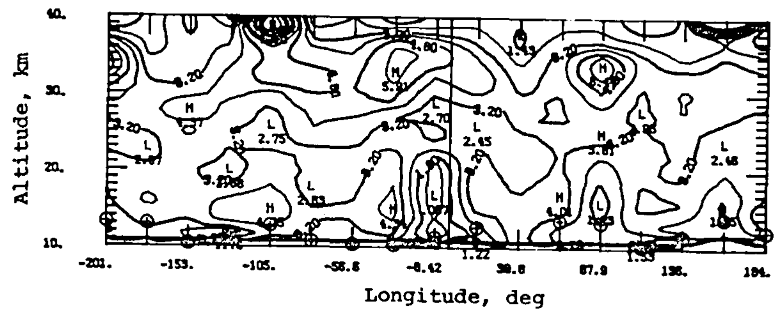
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



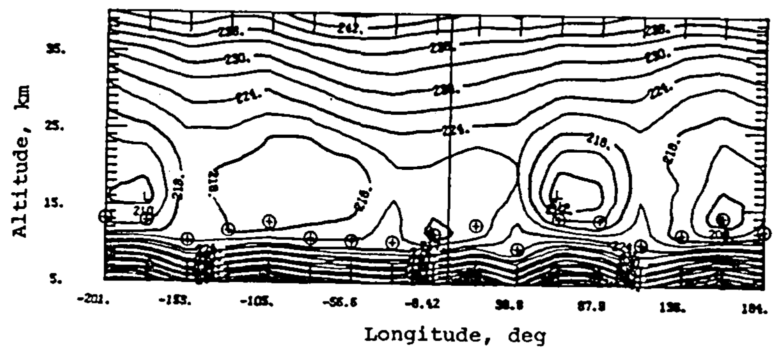
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

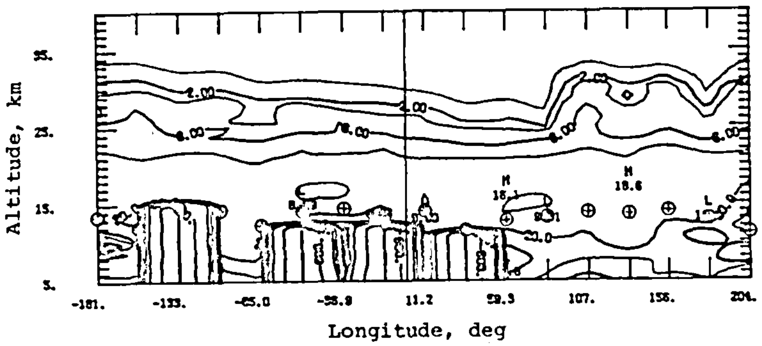


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

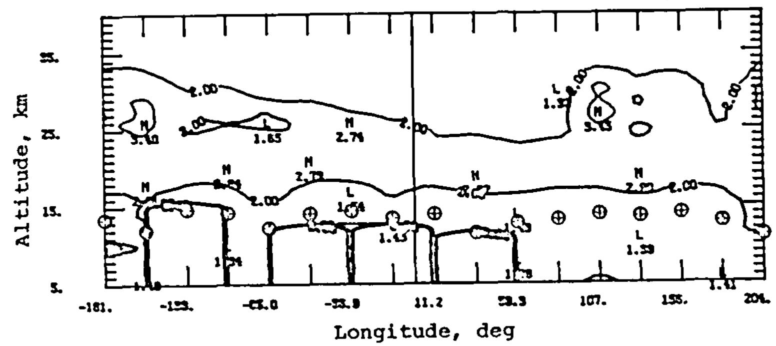


(e) Temperature (kelvin).

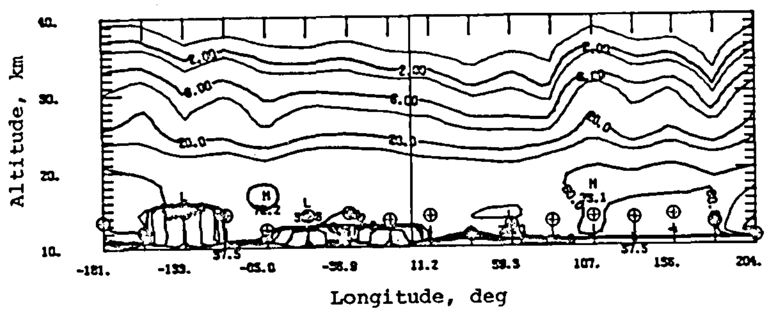
Figure 139. Extinction and temperature isopleths for sweep 13, sunset events, April 19.20–April 20.28, 1980, at 47.2°S to 44.9°S.



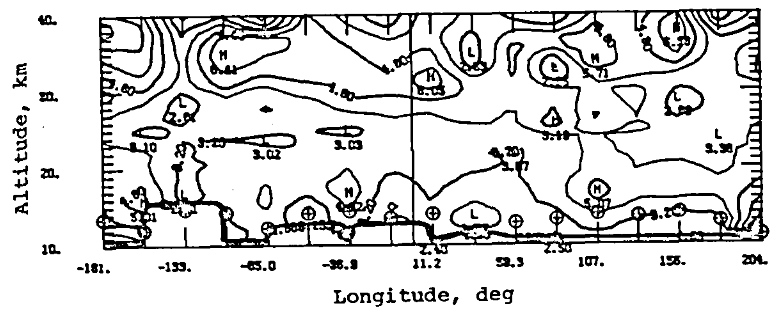
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



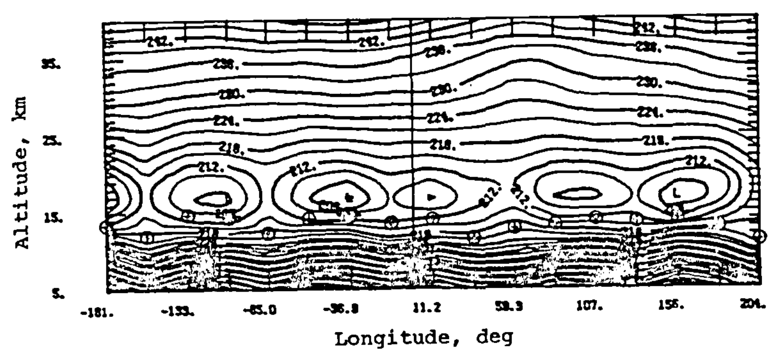
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

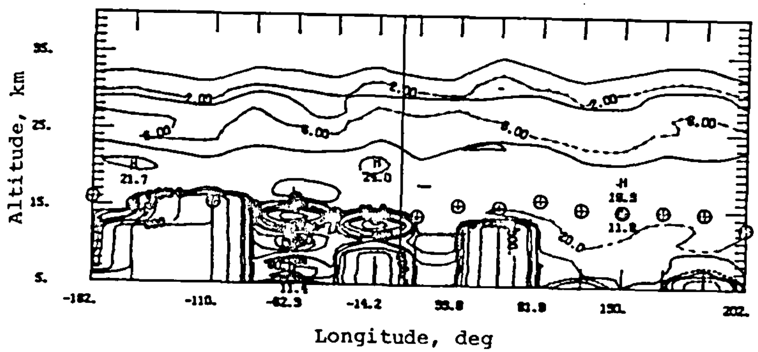


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

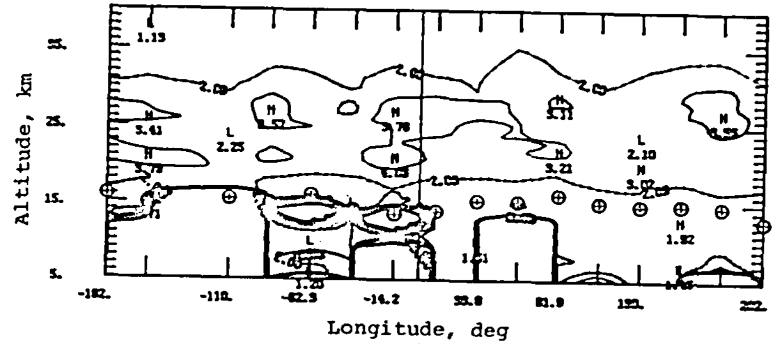


(e) Temperature (kelvin).

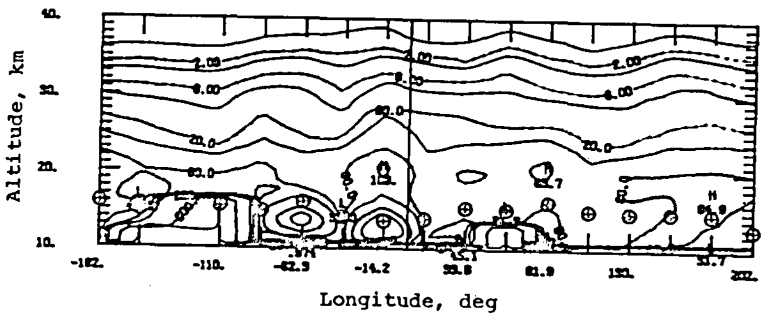
Figure 140. Extinction and temperature isopleths for sweep 13, sunset events, April 23.16–April 24.23, 1980, at 36.4°S to 32.0°S.



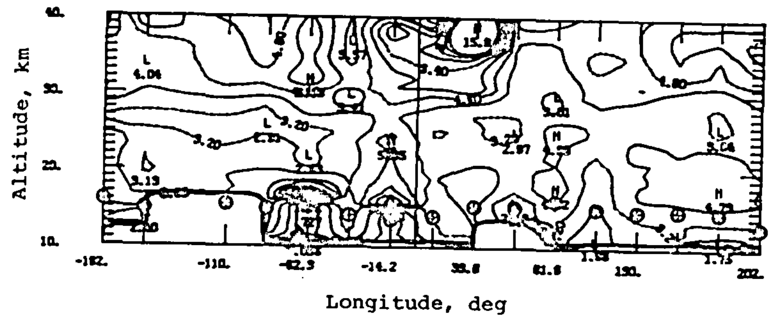
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



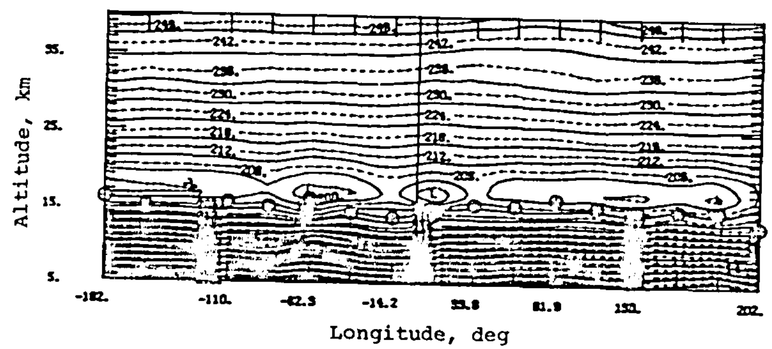
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

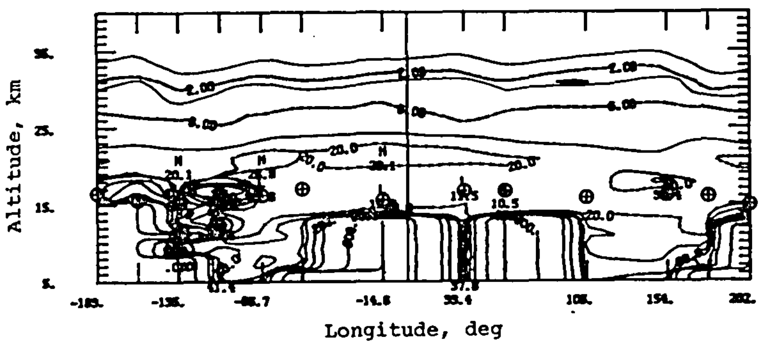


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

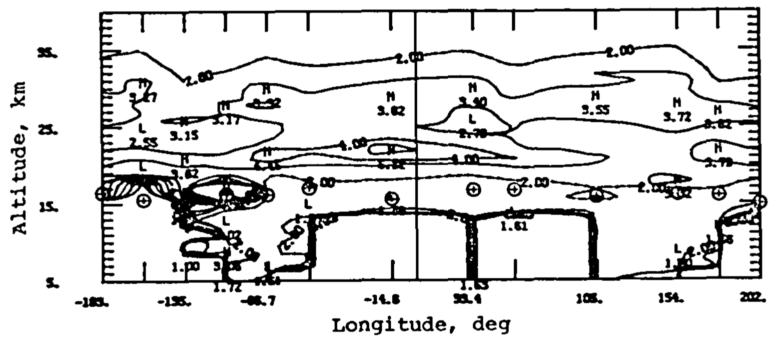


(e) Temperature (kelvin).

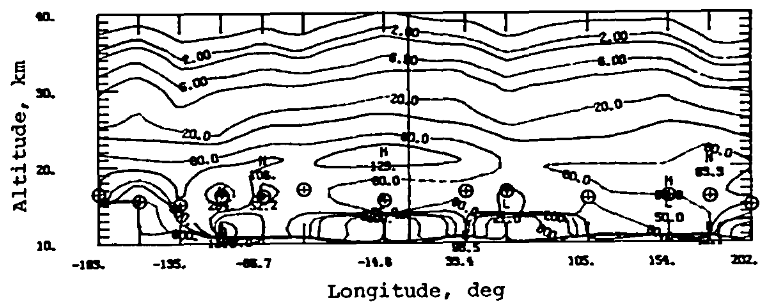
Figure 141. Extinction and temperature isopleths for sweep 13, sunset events, April 25.17–April 26.24, 1980, at 27.4°S to 21.0°S.



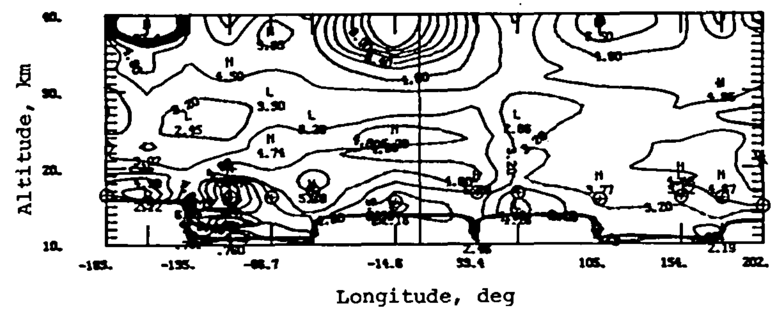
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



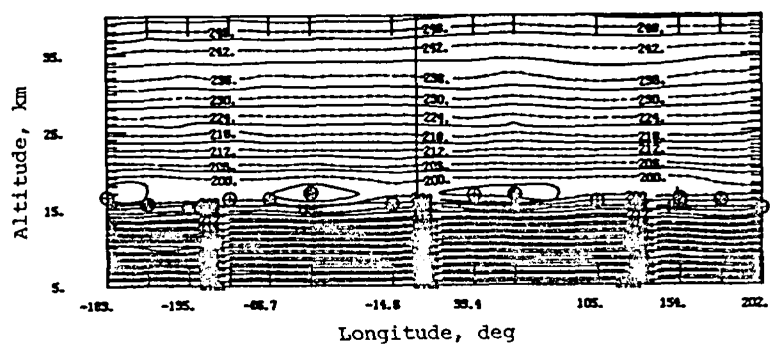
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

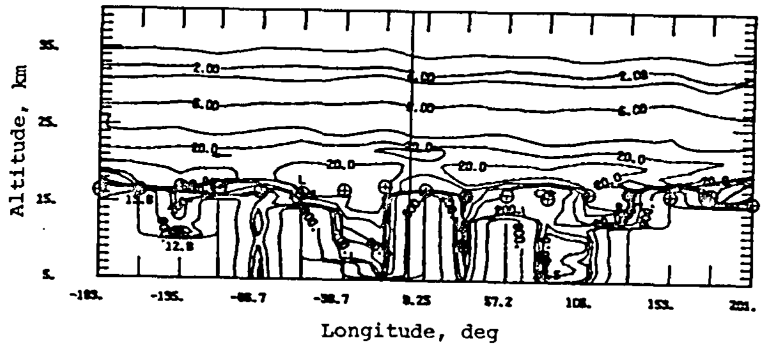


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

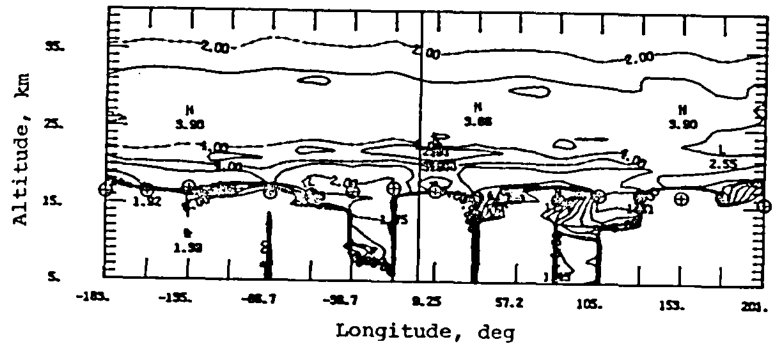


(e) Temperature (kelvin).

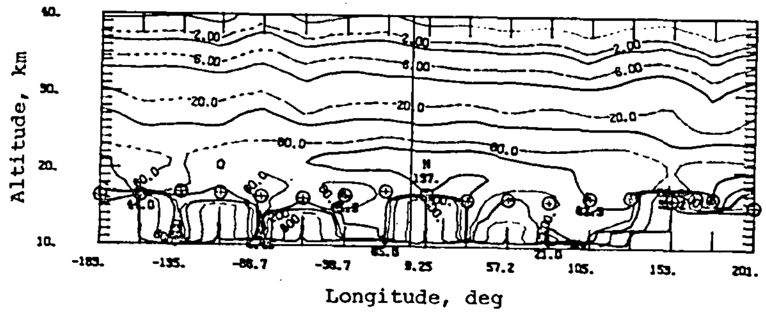
Figure 142. Extinction and temperature isopleths for sweep 13, sunset events, April 26.17–April 27.25, 1980, at 21.5°S to 13.4°S.



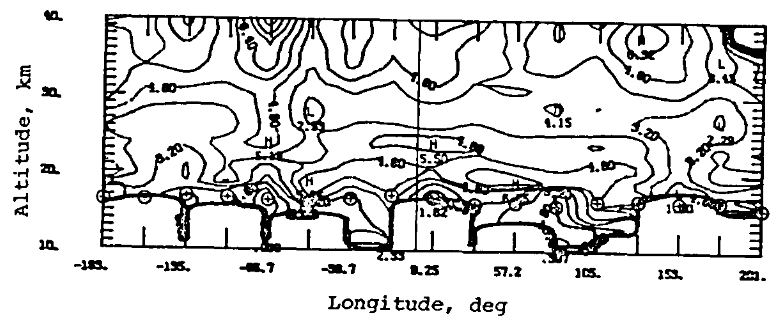
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



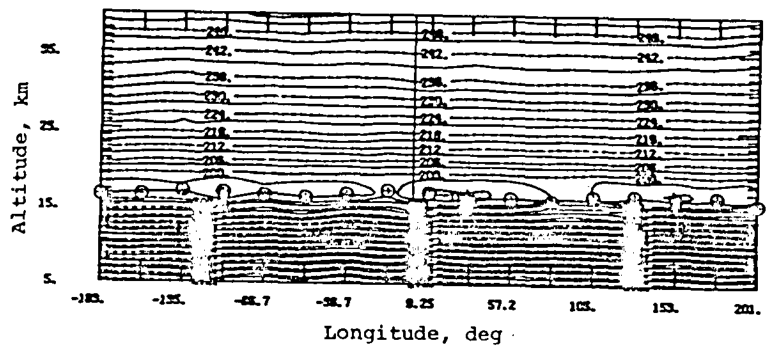
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

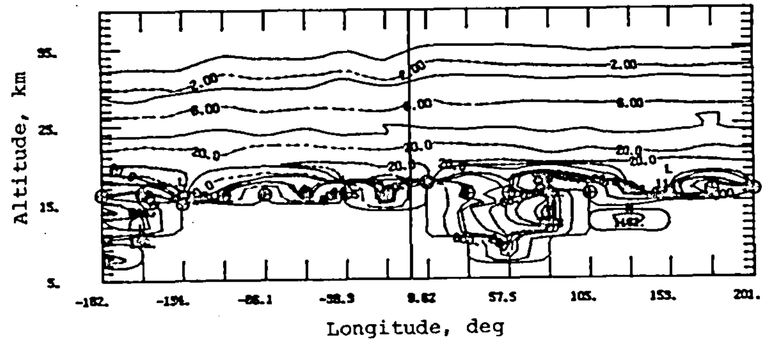


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

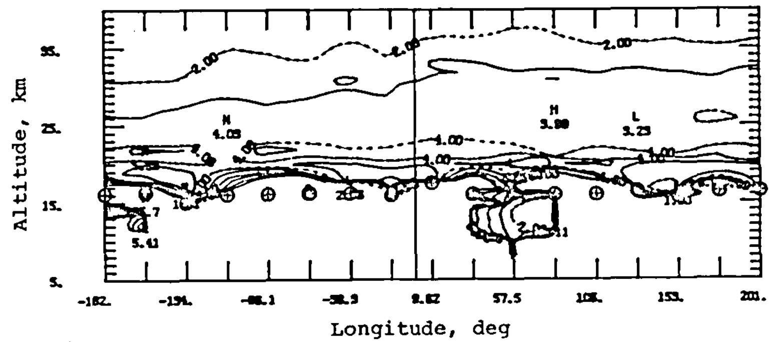


(e) Temperature (kelvin).

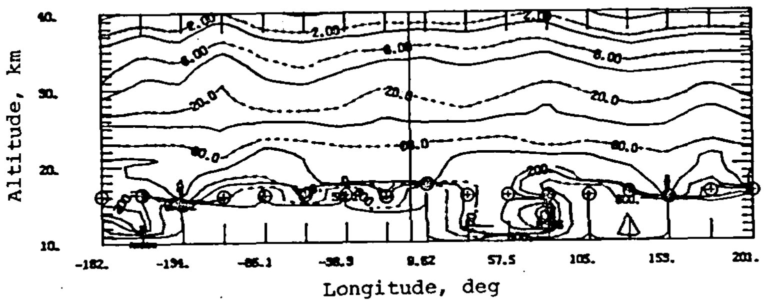
Figure 143. Extinction and temperature isopleths for sweep 13, sunset events, April 27.18–April 28.25, 1980, at 14.0°S to 3.6°S.



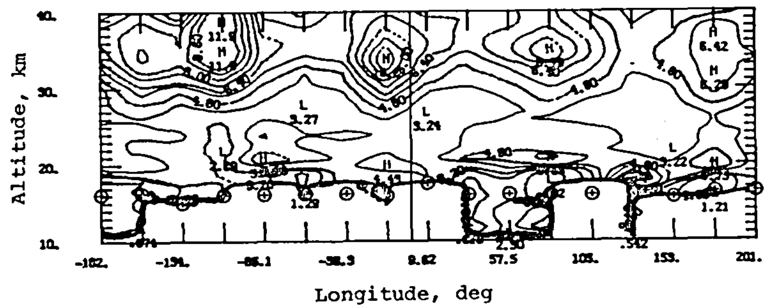
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



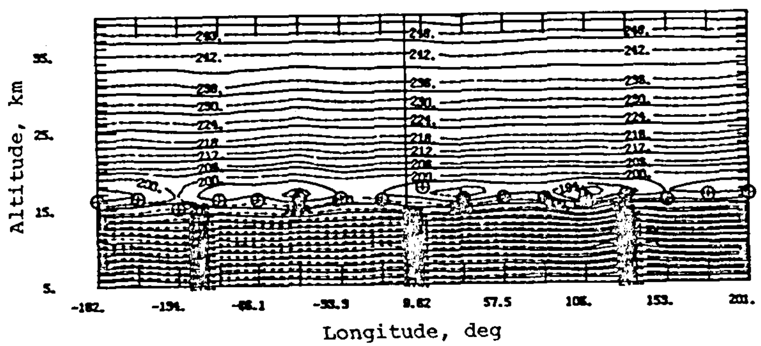
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

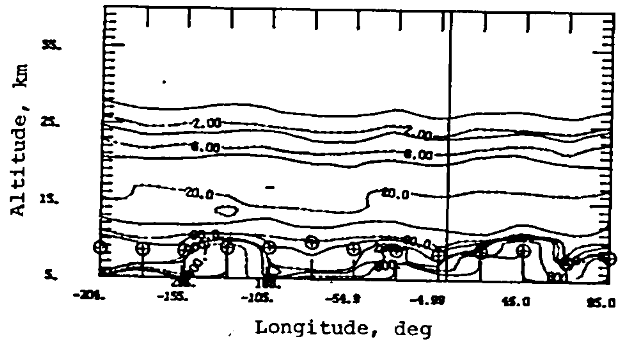


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

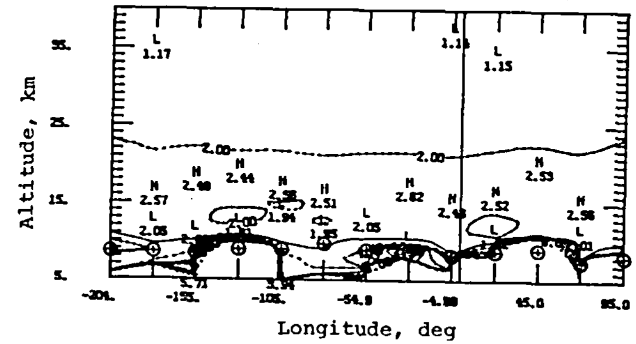


(e) Temperature (kelvin).

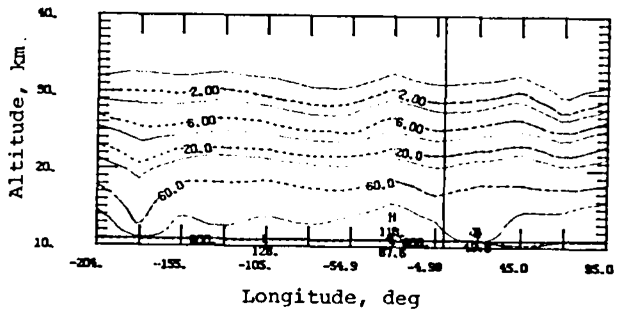
Figure 144. Extinction and temperature isopleths for sweep 13, sunset events, April 28.19–April 29.26, 1980, at 4.3°S to 9.5°N.



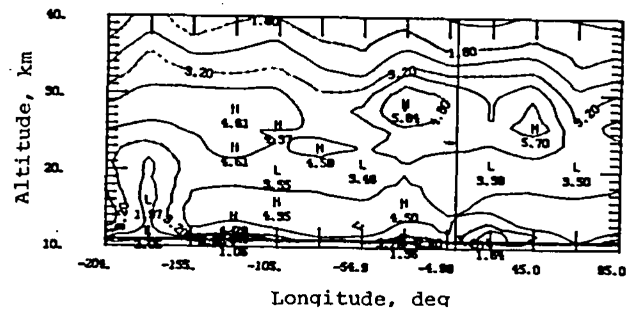
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



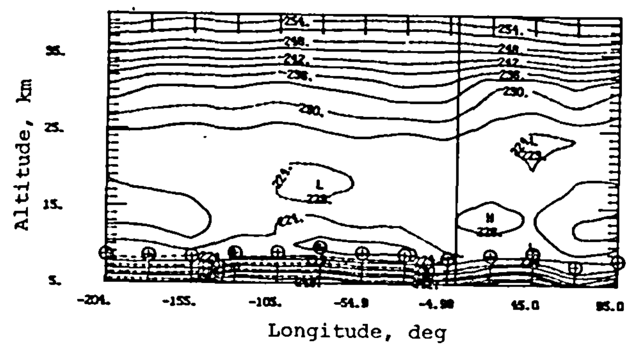
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

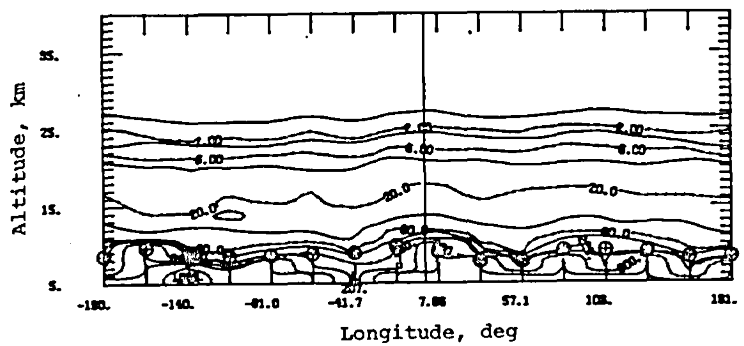


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

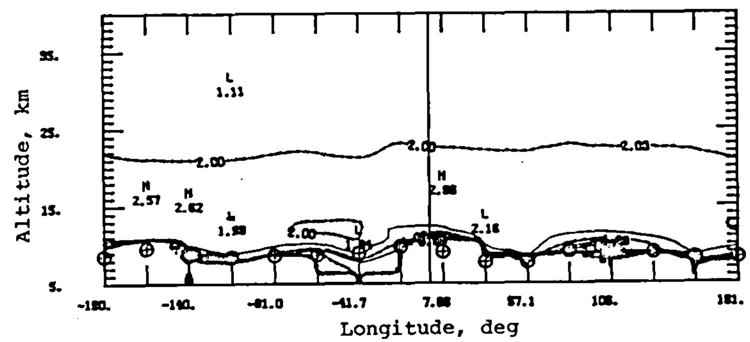


(e) Temperature (kelvin).

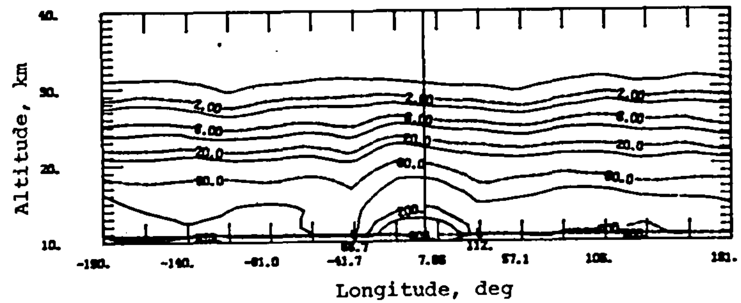
Figure 145. Extinction and temperature isopleths for sweep 13, sunset events, May 9.79–May 10.6, 1980, at 71.1°N to 71.8°N.



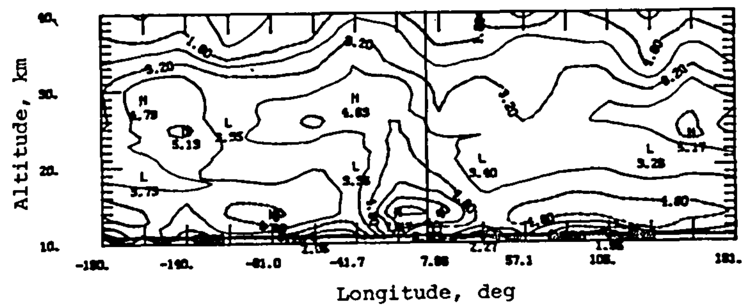
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



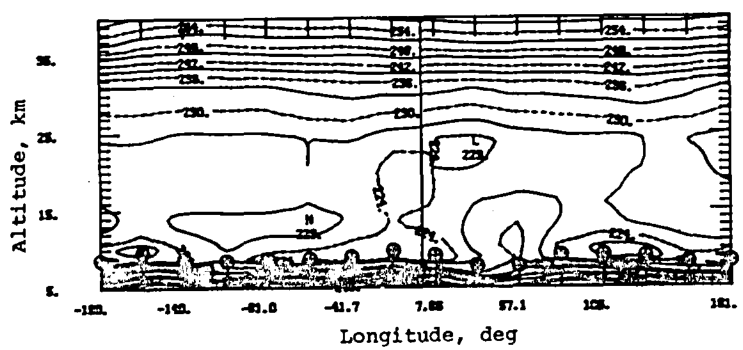
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

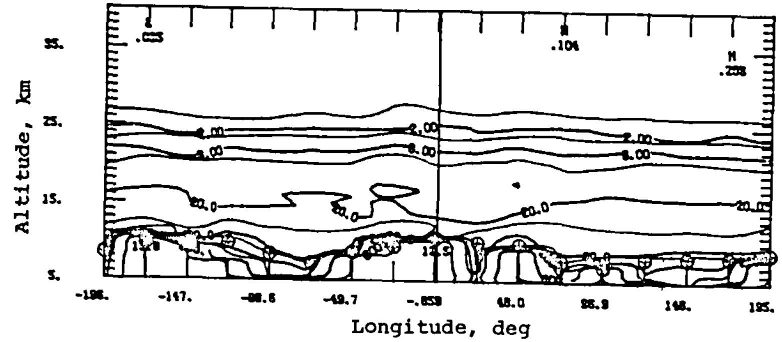


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

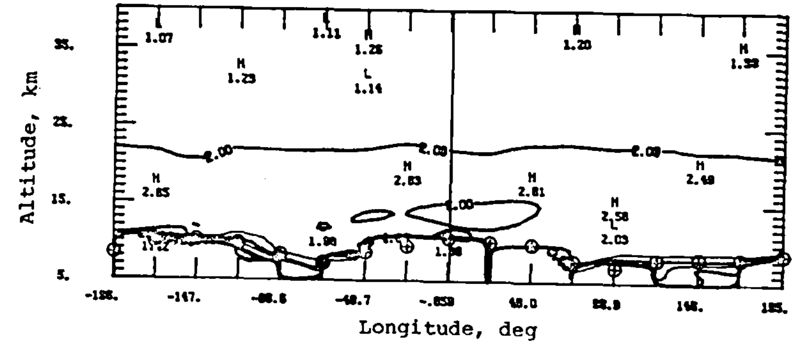


(e) Temperature (kelvin).

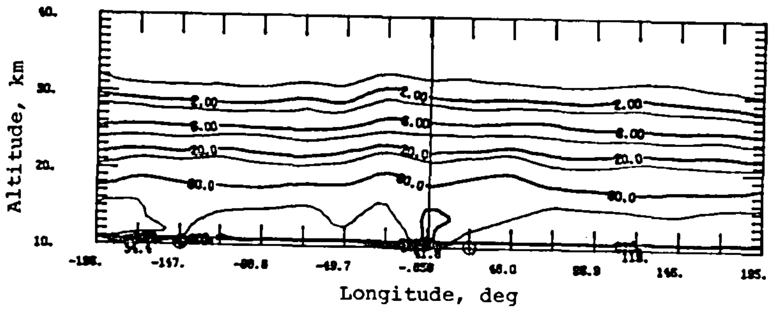
Figure 146. Extinction and temperature isopleths for sweep 14, sunset events, May 12.47–May 13.48, 1980, at 71.4°N to 70.5°N.



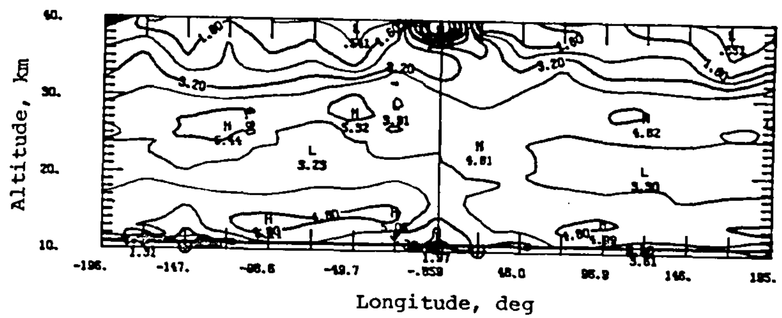
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



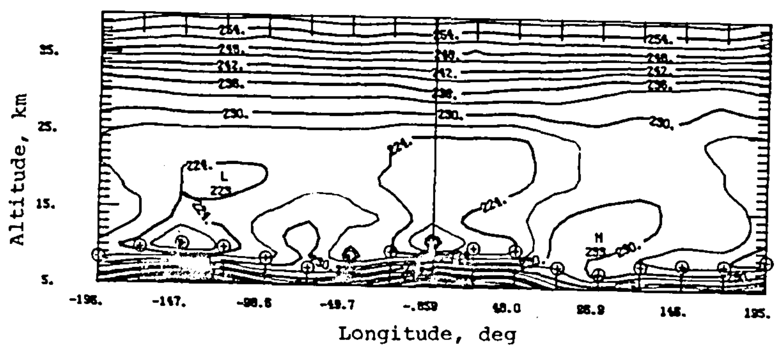
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

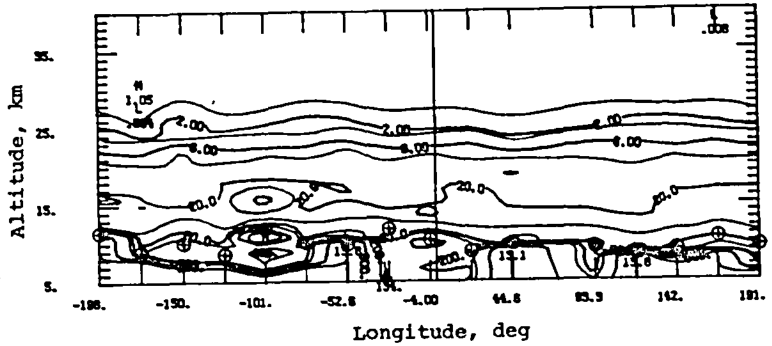


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

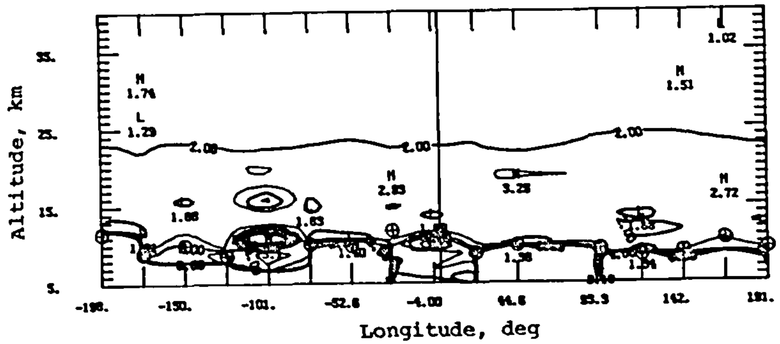


(e) Temperature (kelvin).

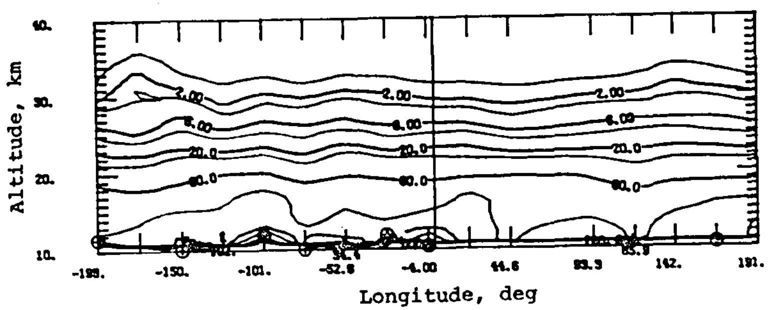
Figure 147. Extinction and temperature isopleths for sweep 14, sunset events, May 16.36–May 17.43, 1980, at 66.4°N to 64.5°N.



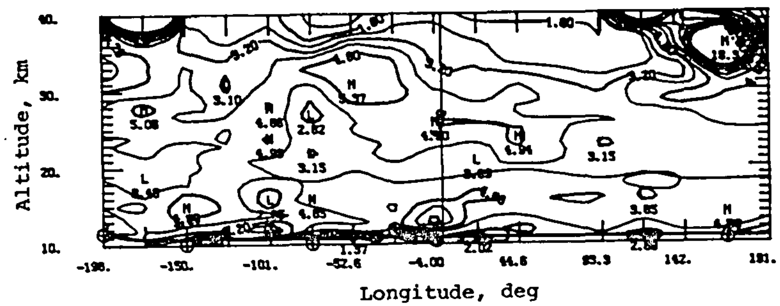
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



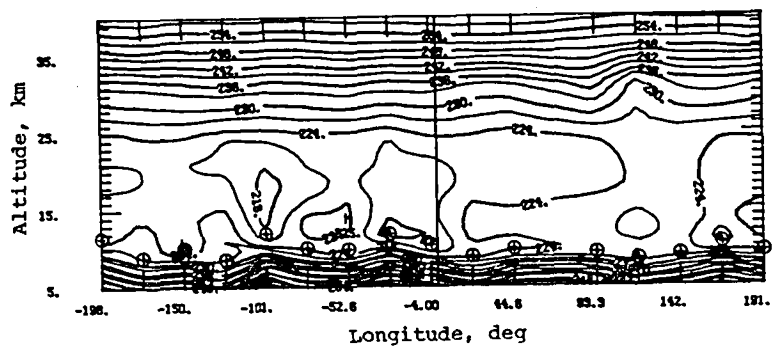
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

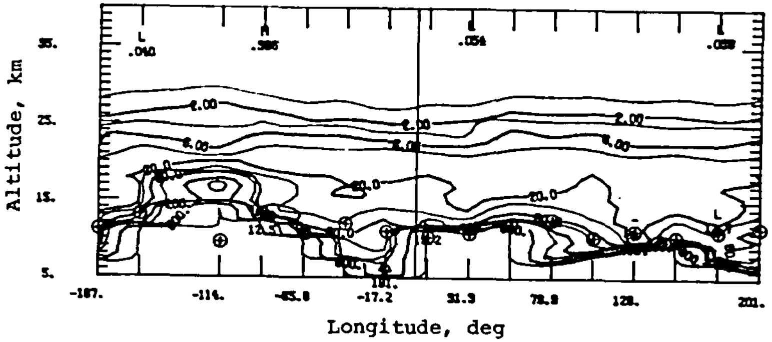


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

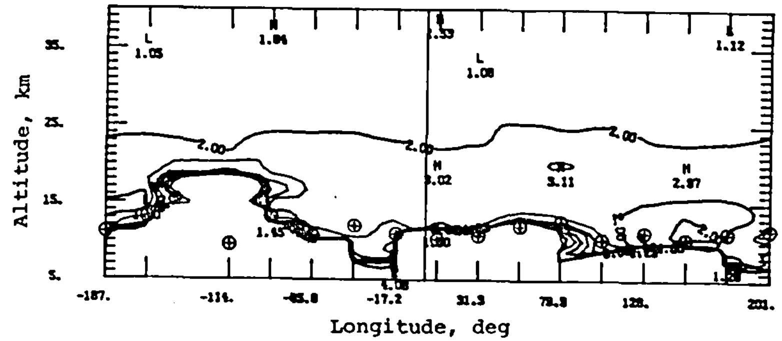


(e) Temperature (kelvin).

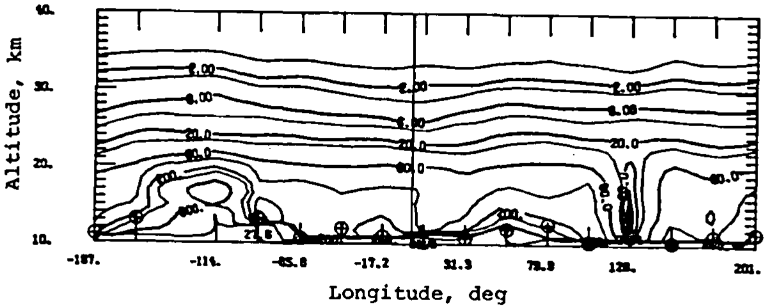
Figure 148. Extinction and temperature isopleths for sweep 14, sunset events, May 21.31–May 22.38, 1980, at 55.9°N to 53.1°N.



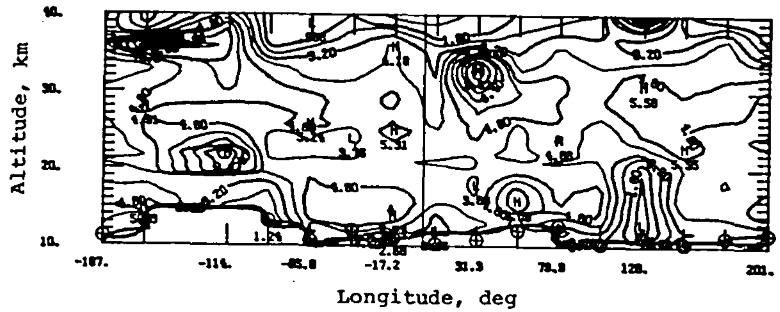
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



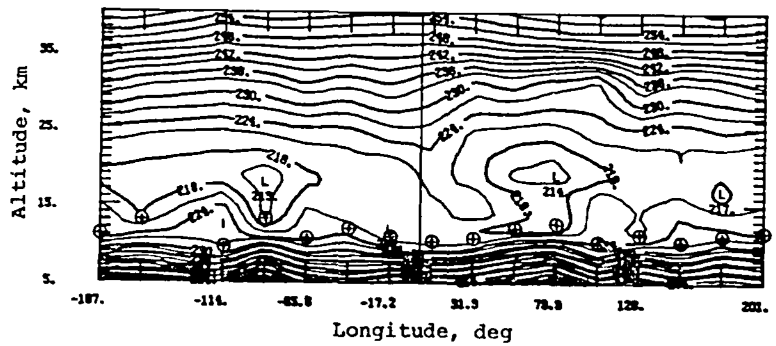
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

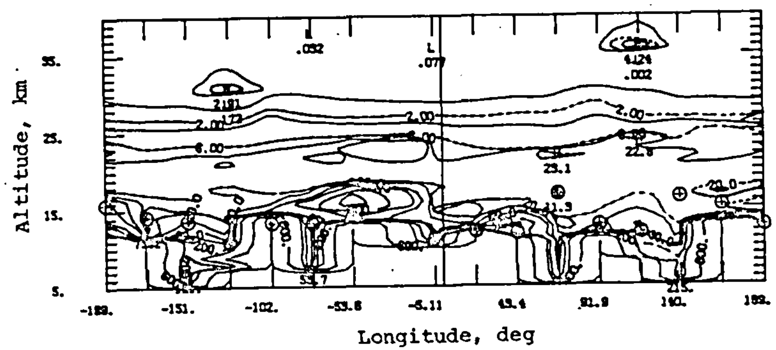


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

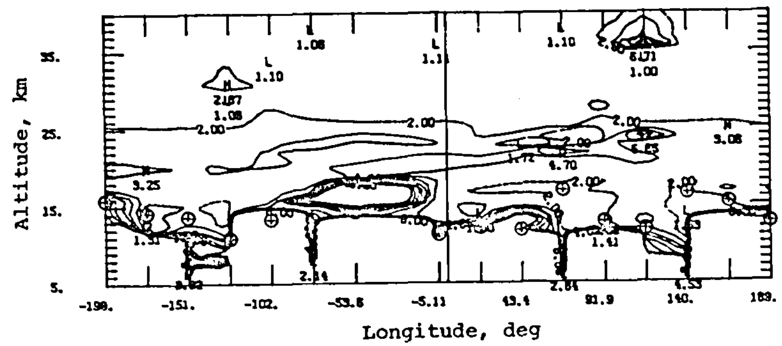


(e) Temperature (kelvin).

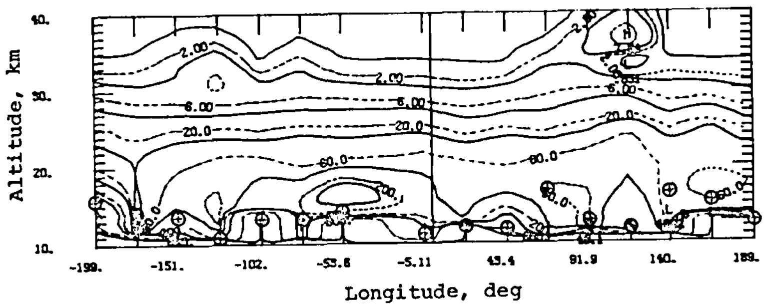
Figure 149. Extinction and temperature isopleths for sweep 14, sunset events, May 24.26–May 25.33, 1980, at 47.7°N to 44.3°N.



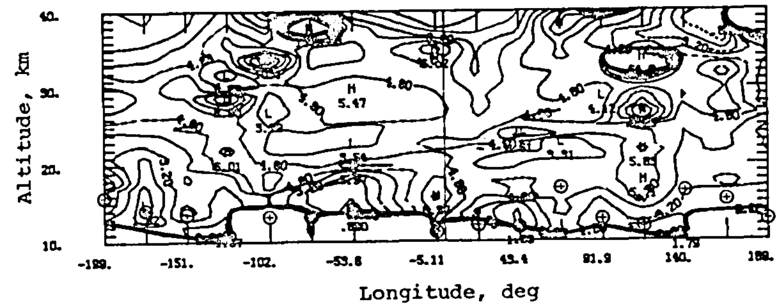
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



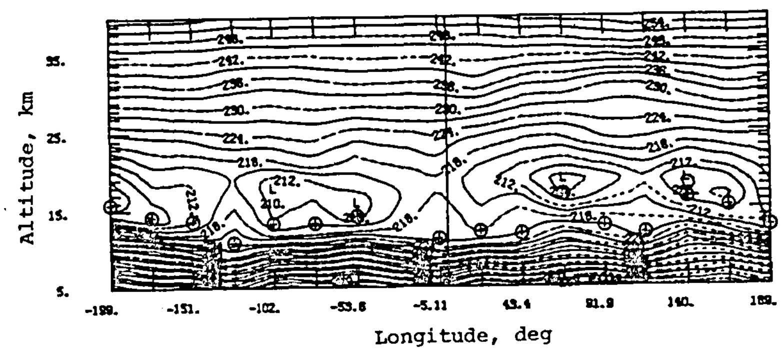
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

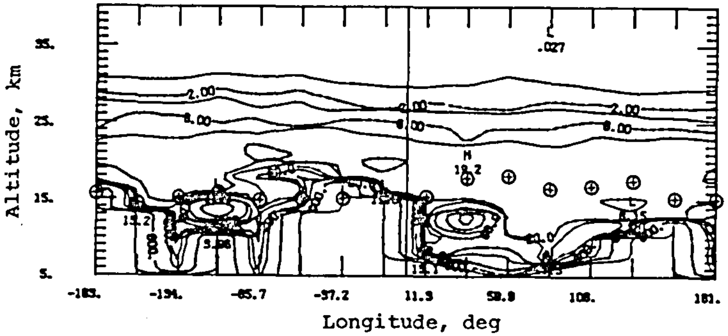


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

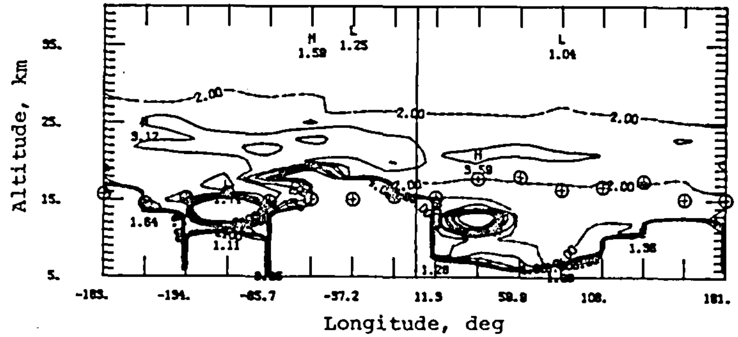


(e) Temperature (kelvin).

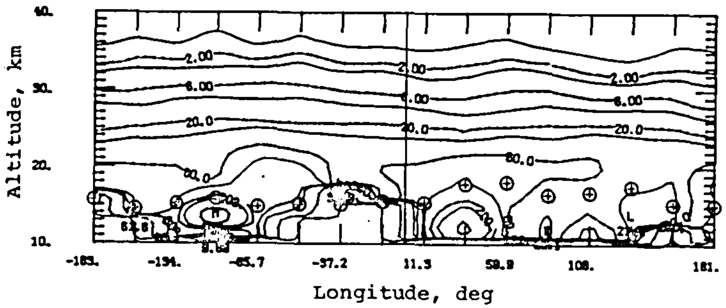
Figure 150. Extinction and temperature isopleths for sweep 14, sunset events, May 27.27–May 28.34, 1980, at 37.5°N to 33.4°N.



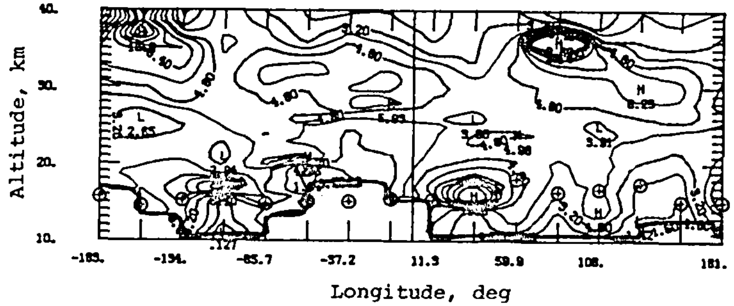
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



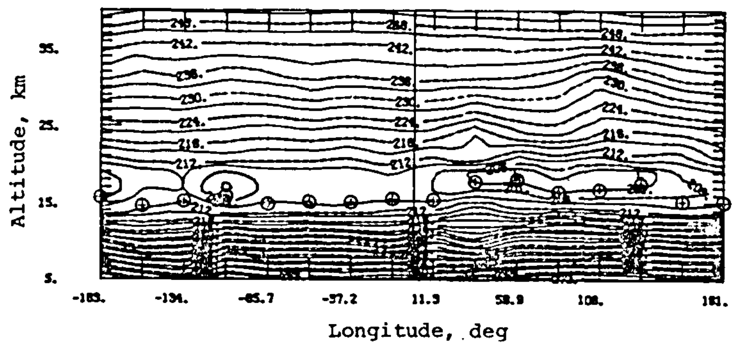
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

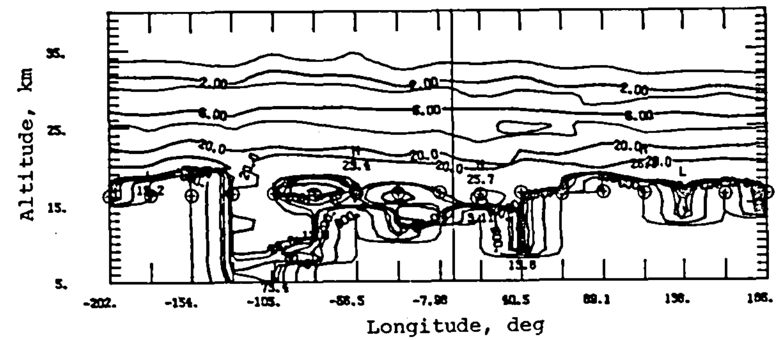


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

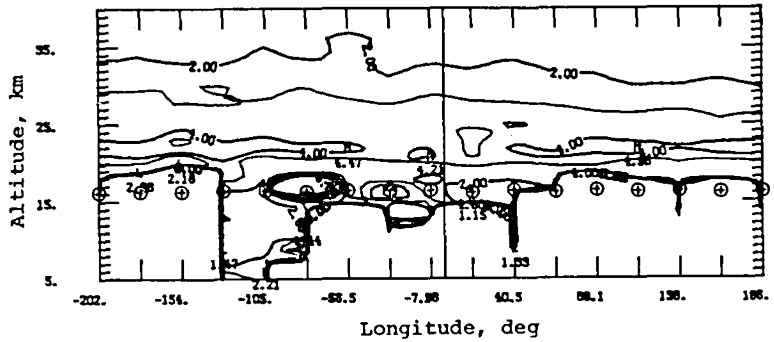


(e) Temperature (kelvin).

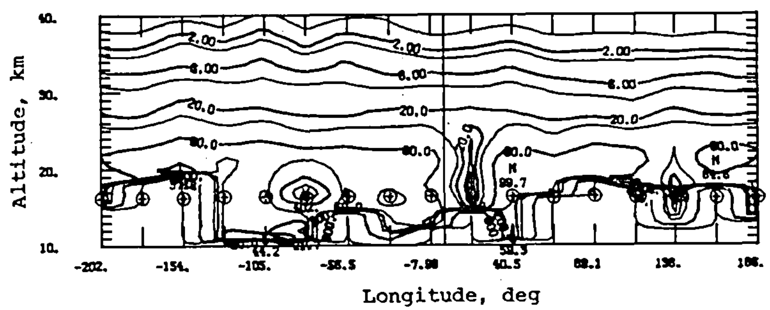
Figure 151. Extinction and temperature isopleths for sweep 14, sunset events, May 29.28–May 30.29, 1980, at 29.6°N to 25.3°N.



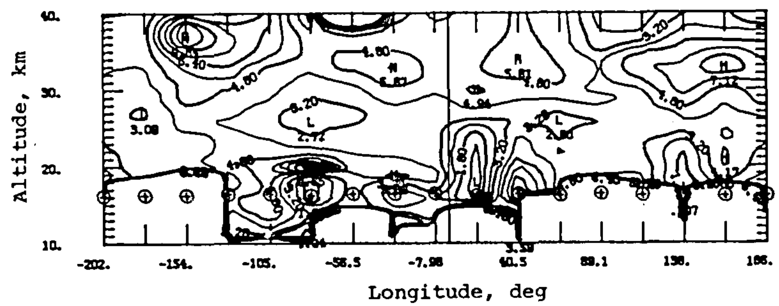
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



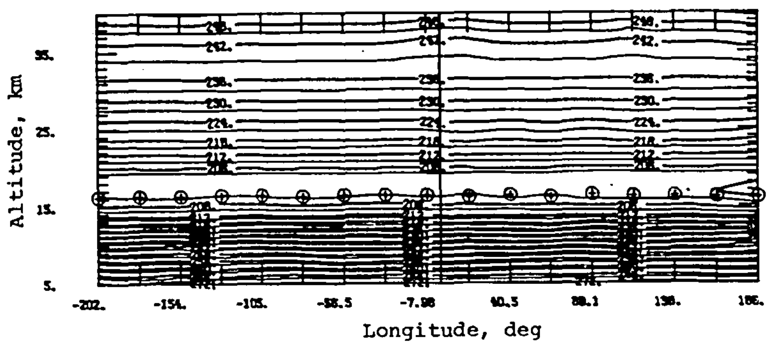
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

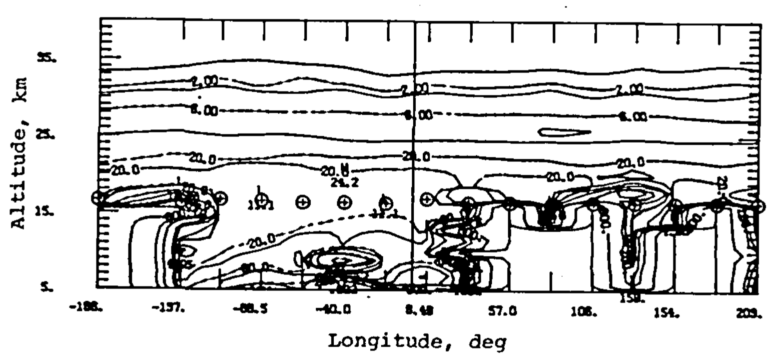


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

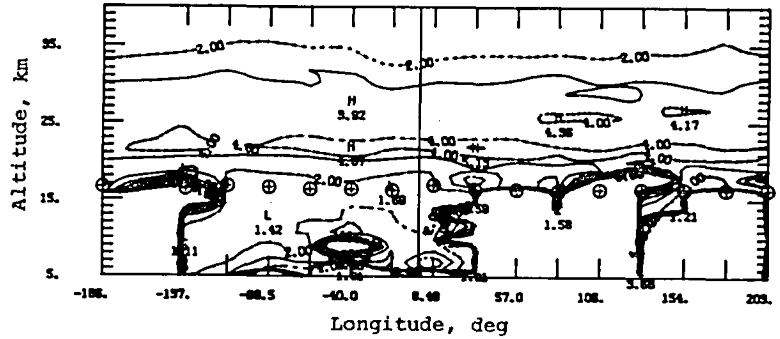


(e) Temperature (kelvin).

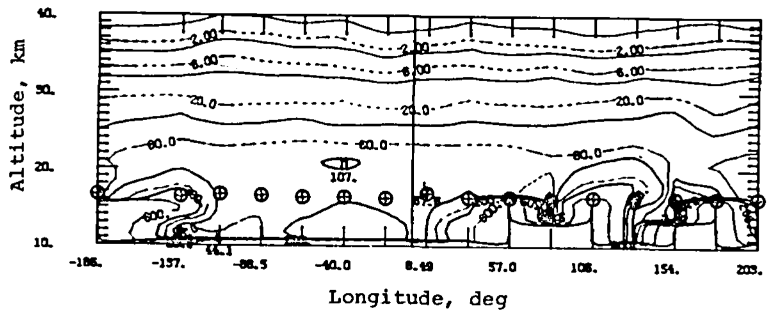
Figure 152. Extinction and temperature isopleths for sweep 14, sunset events, June 3.24–June 4.31, 1980, at 6.4°N to 1.0°N.



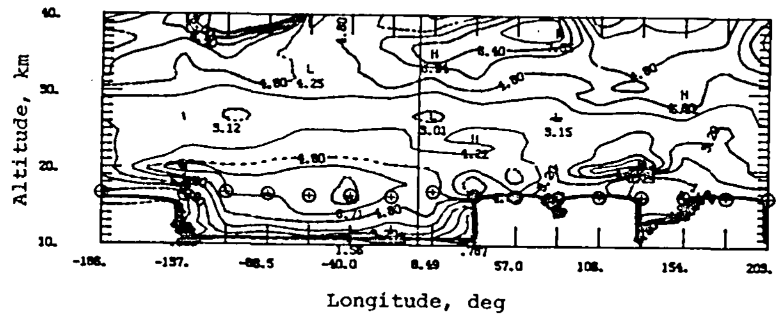
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



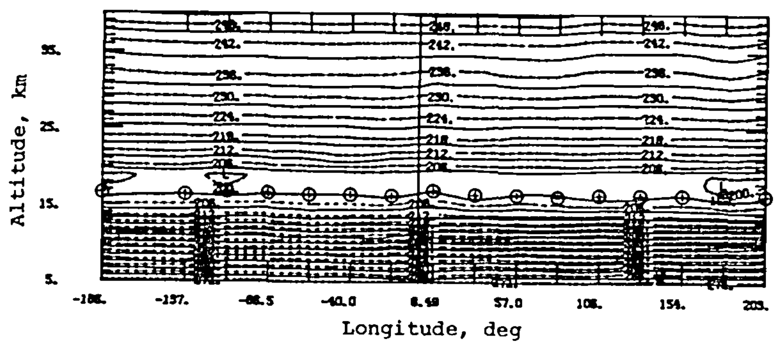
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

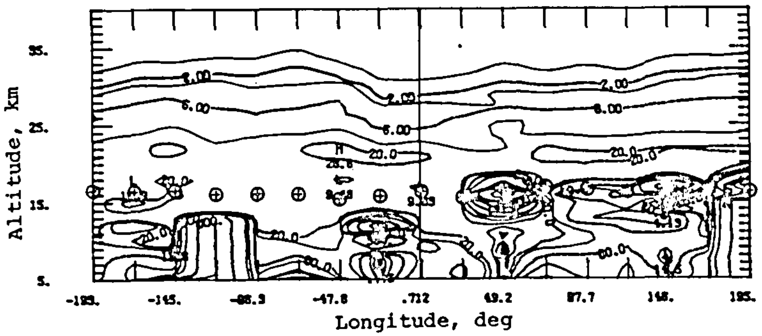


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

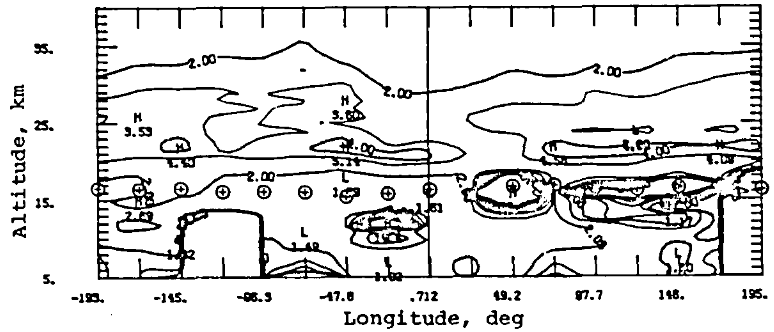


(e) Temperature (kelvin).

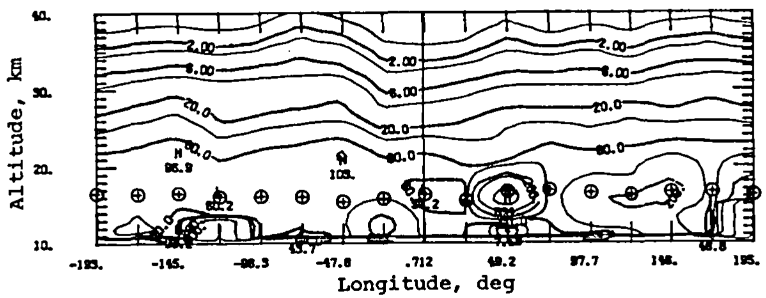
Figure 153. Extinction and temperature isopleths for sweep 14, sunset events, June 5.18–June 6.26, 1980, at 3.4°S to 8.7°S.



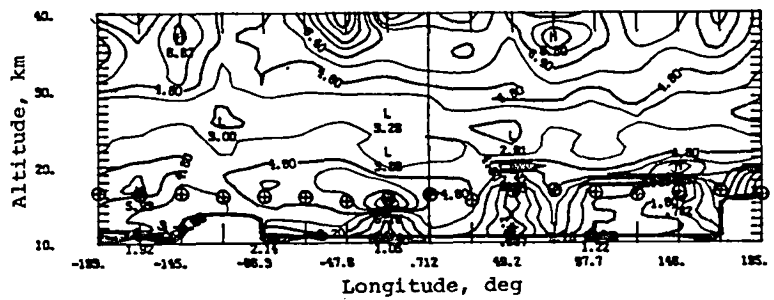
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



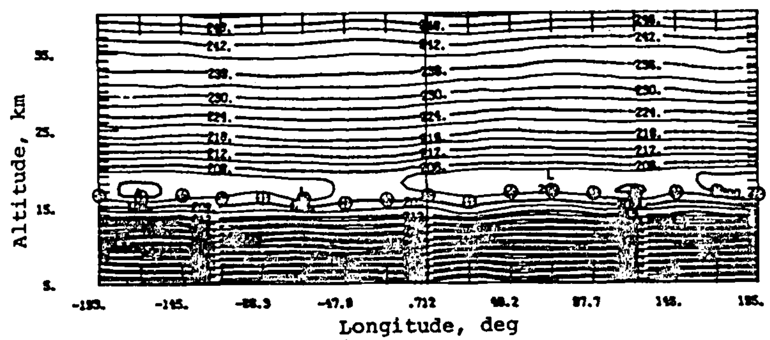
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

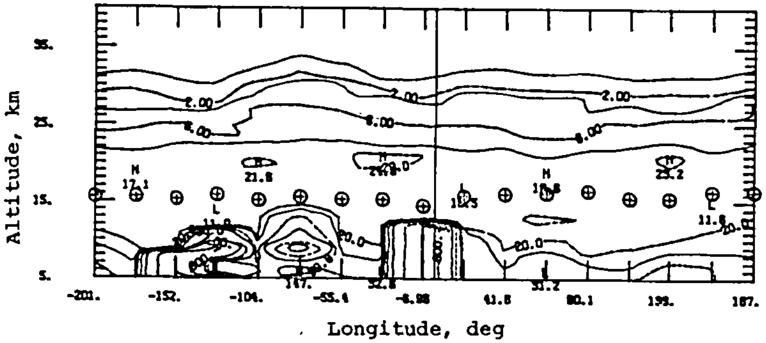


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

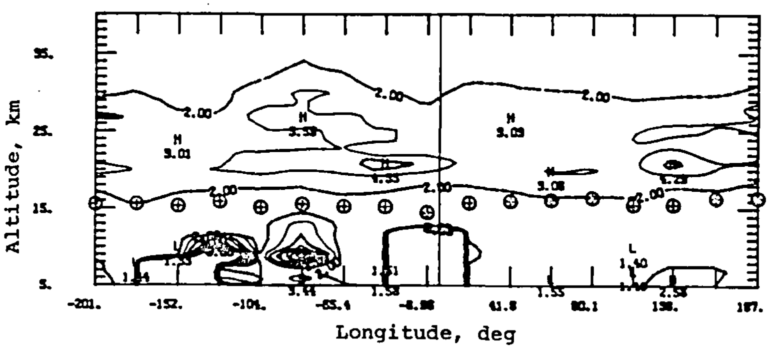


(e) Temperature (kelvin).

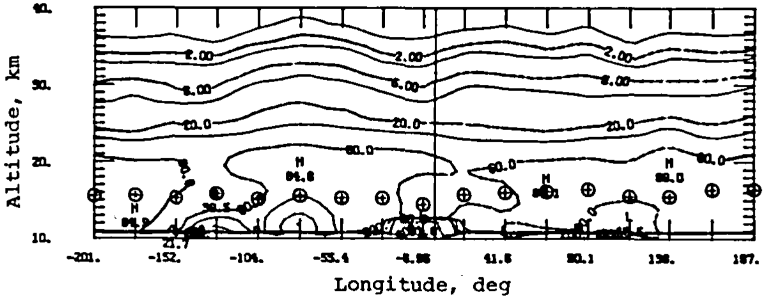
Figure 154. Extinction and temperature isopleths for sweep 14, sunset events, June 7.19–June 8.27, 1980, at 13.2°S to 18.1°S.



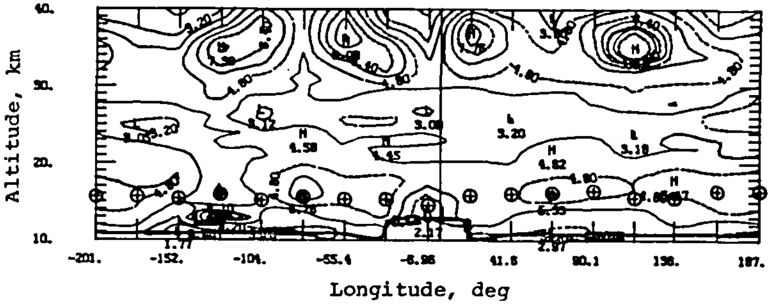
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



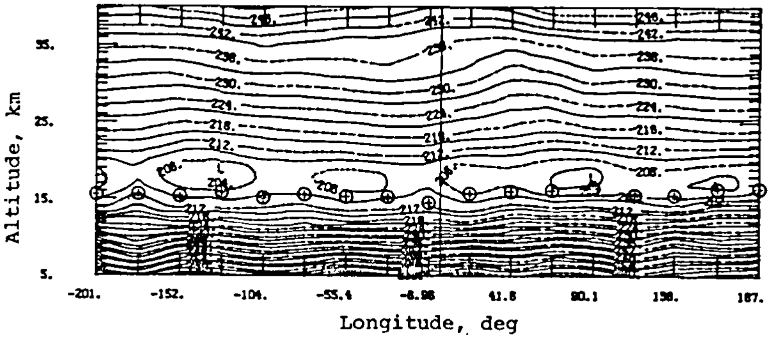
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

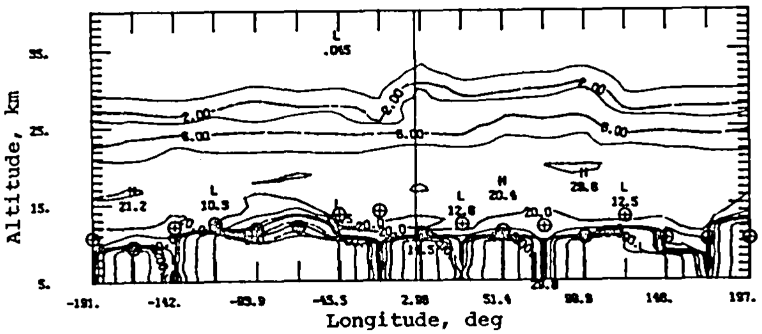


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

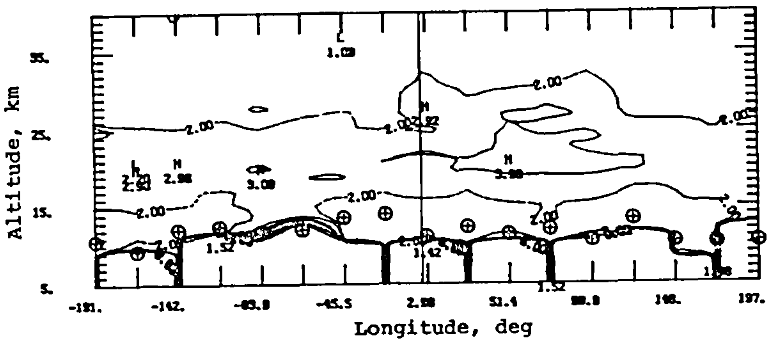


(e) Temperature (kelvin).

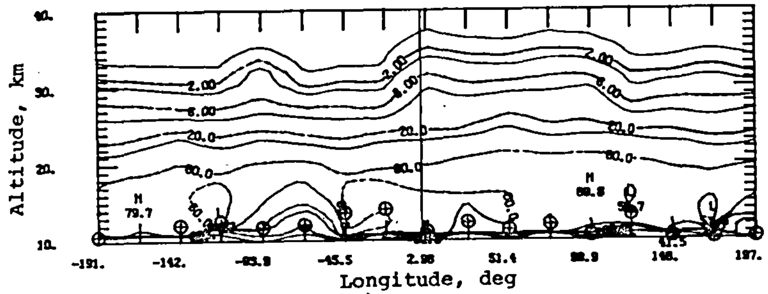
Figure 155. Extinction and temperature isopleths for sweep 14, sunset events, June 9.20–June 10.28, 1980, at 22.0°S to 26.1°S.



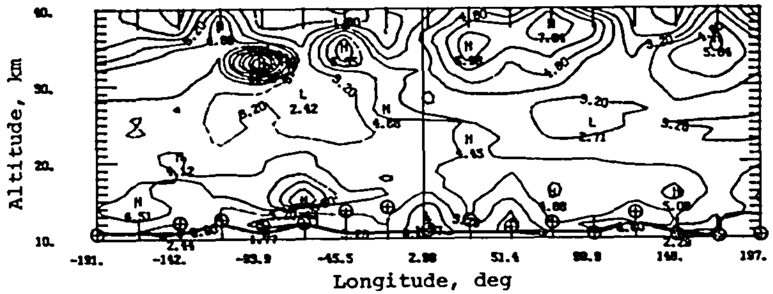
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



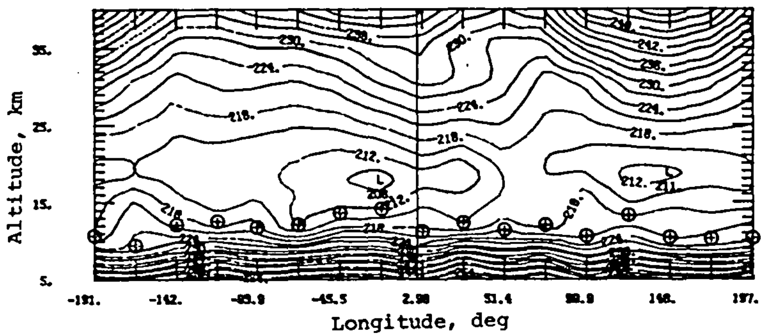
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

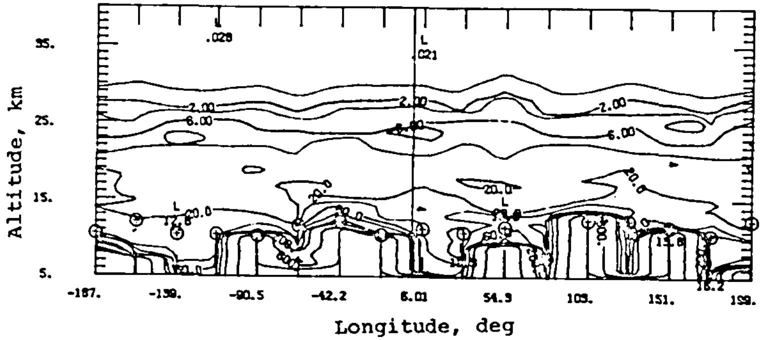


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

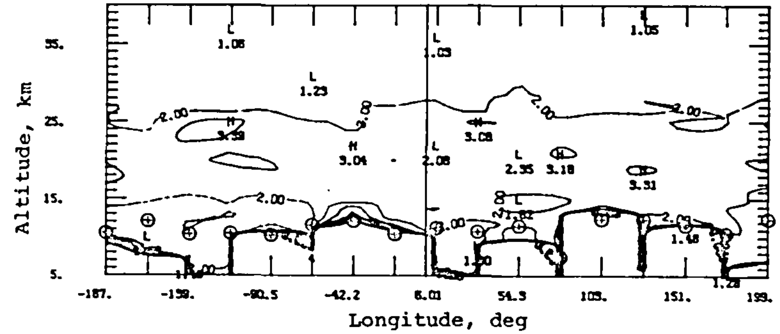


(e) Temperature (kelvin).

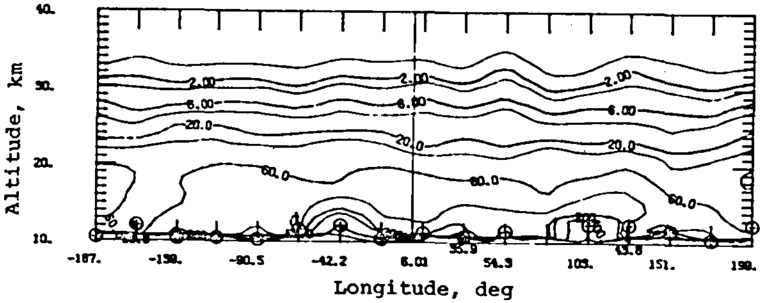
Figure 156. Extinction and temperature isopleths for sweep 14, sunset events, June 13.16–June 14.23, 1980, at 35.0°S to 37.6°S.



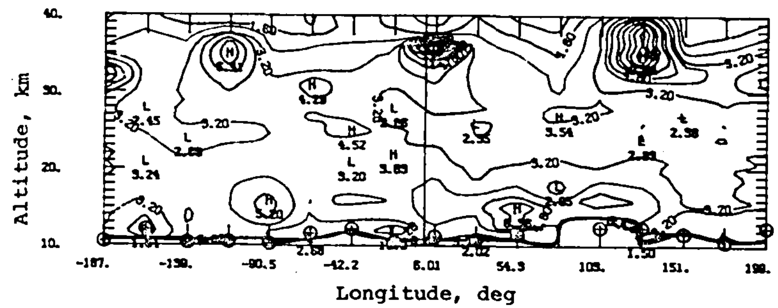
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



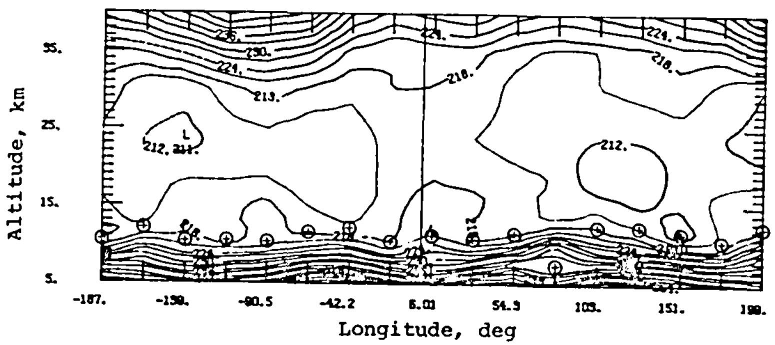
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

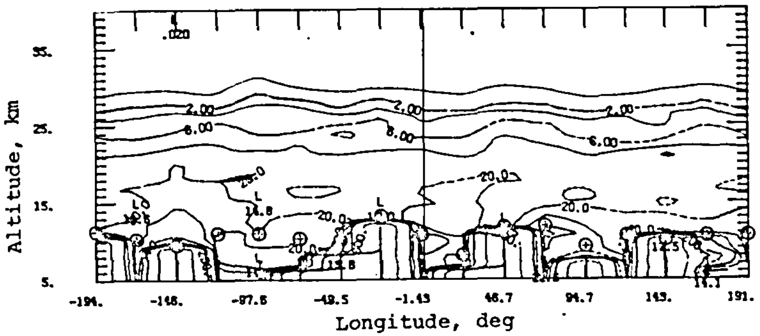


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

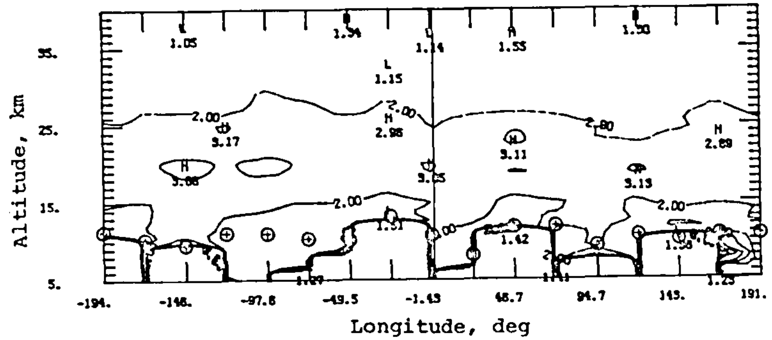


(e) Temperature (kelvin).

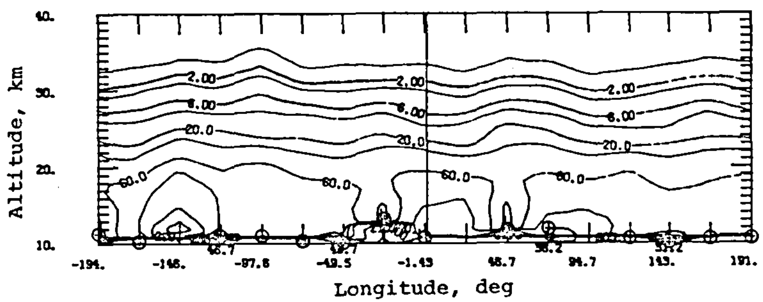
Figure 157. Extinction and temperature isopleths for sweep 14, sunset events, June 21.13–June 22.20, 1980, at 45.9°S to 46.2°S.



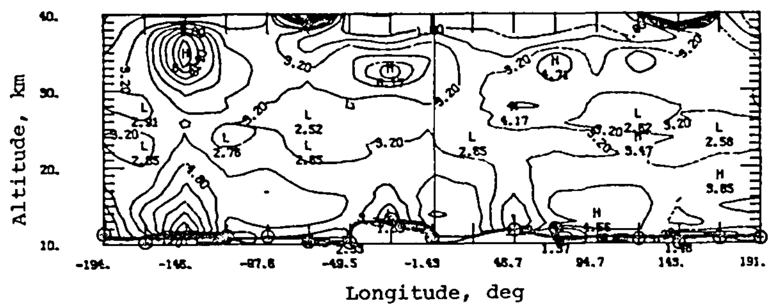
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



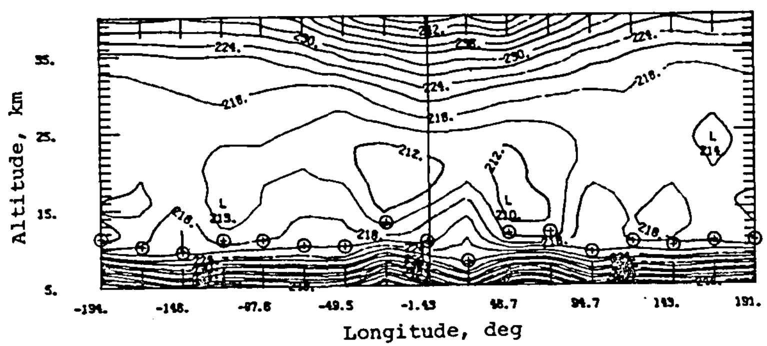
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

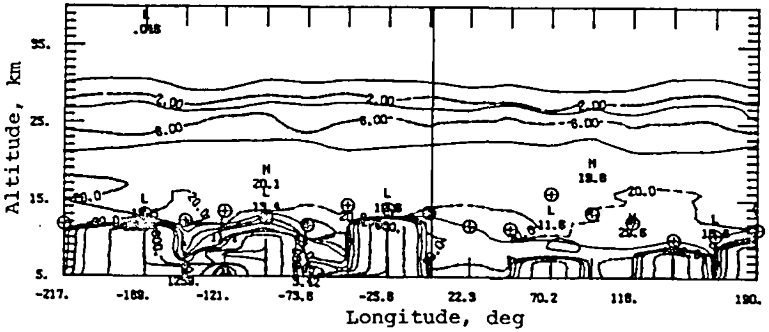


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

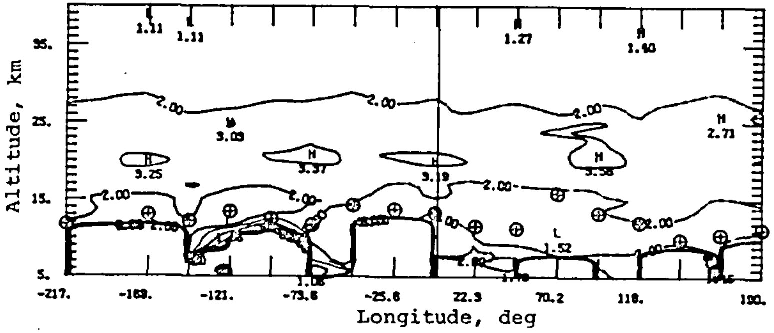


(e) Temperature (kelvin).

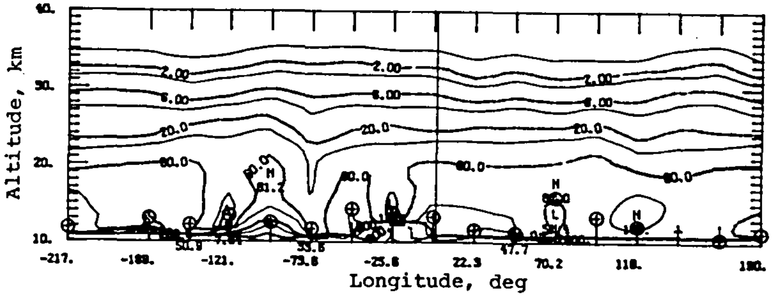
Figure 158. Extinction and temperature isopleths for sweep 15 sunset events, June 27.15–June 28.23, 1980, at 44.7°S to 43.5°S.



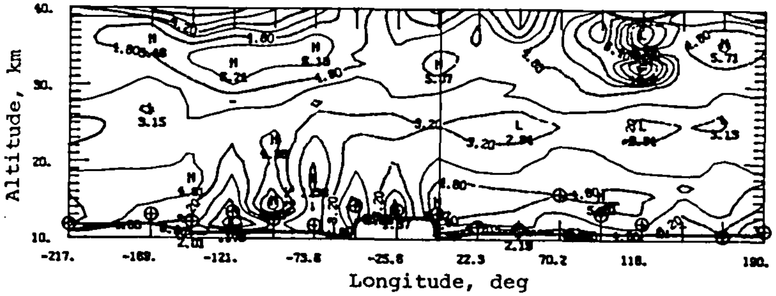
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



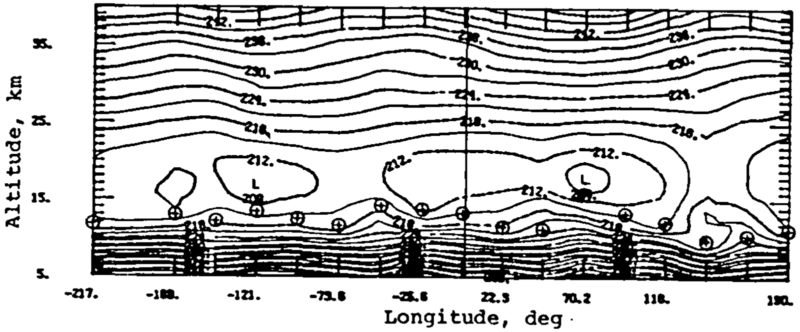
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}

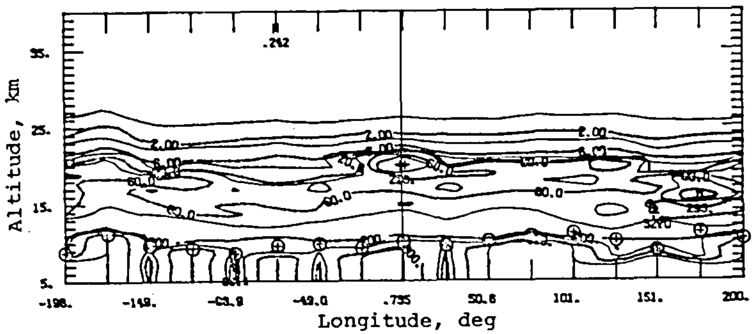


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

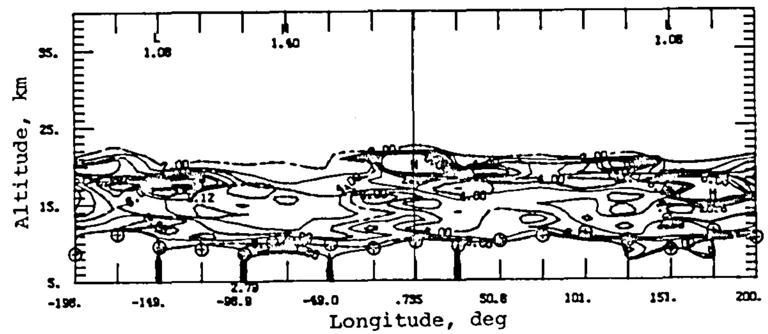


(e) Temperature (kelvin).

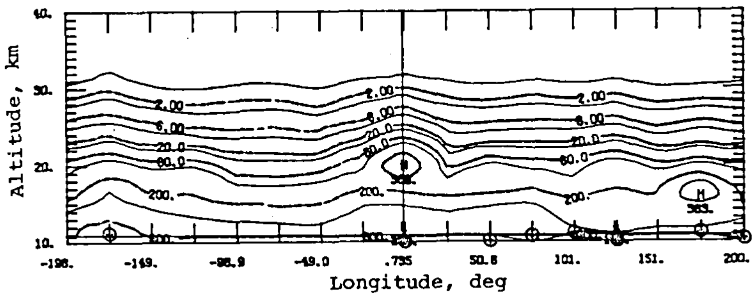
Figure 159. Extinction and temperature isopleths for sweep 15, sunset events, July 1.17–July 2.31, 1980, at 37.8°S to 34.2°S.



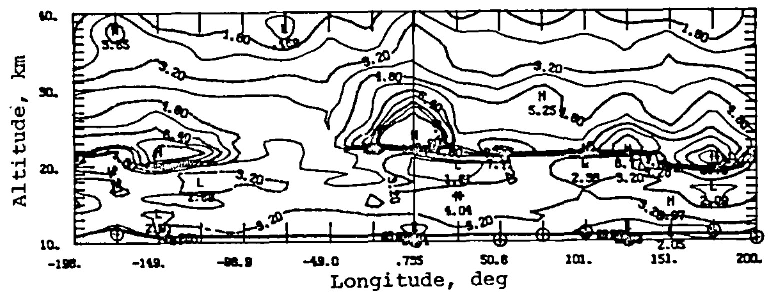
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



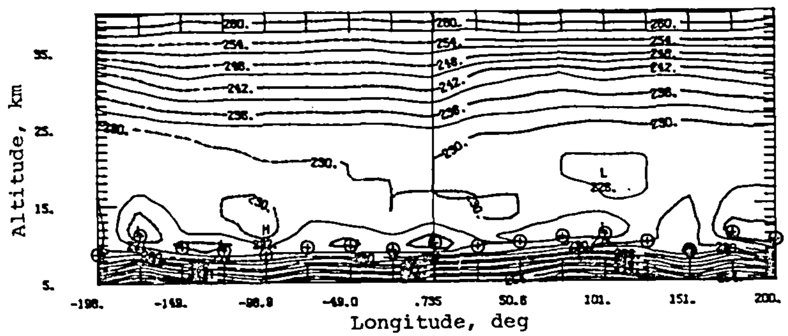
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

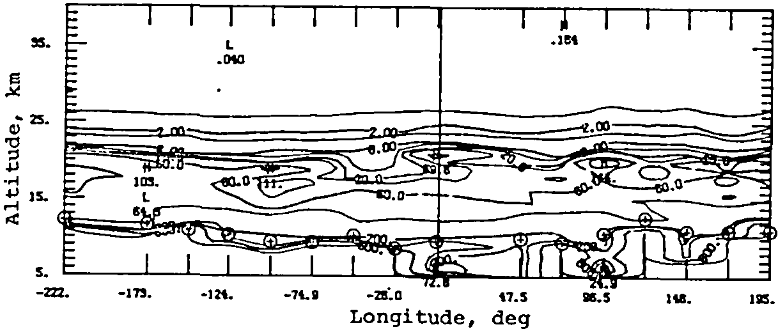


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

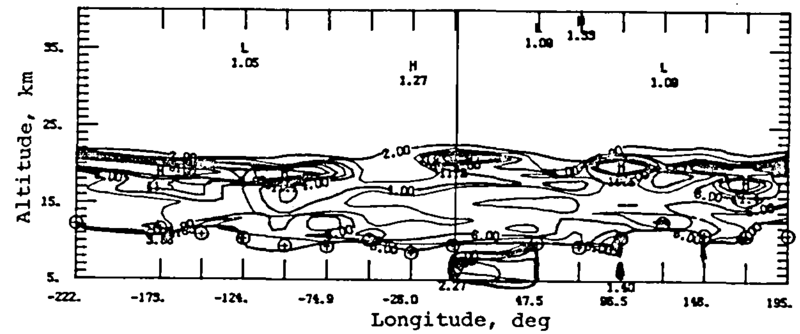


(e) Temperature (kelvin).

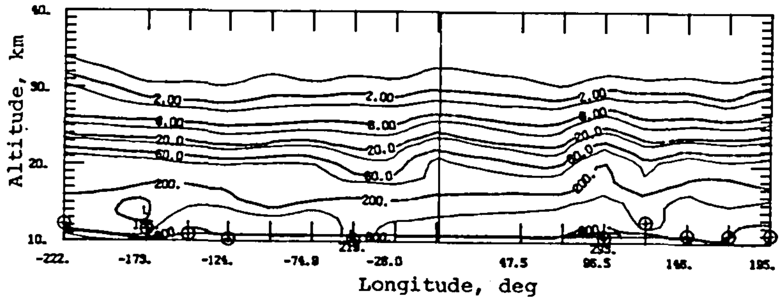
Figure 160. Extinction and temperature isopleths for sweep 15, sunset events, July 19.48–July 20.55, 1980, at 68.8°N to 69.3°N.



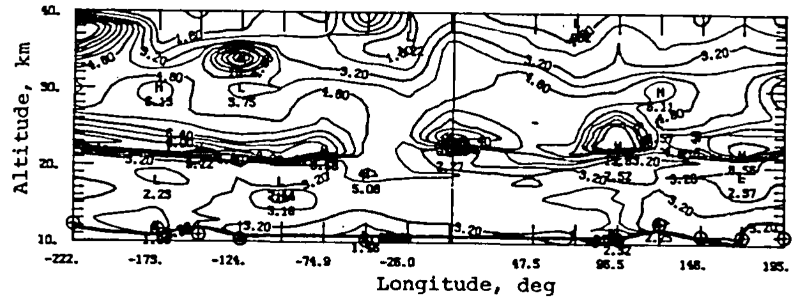
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



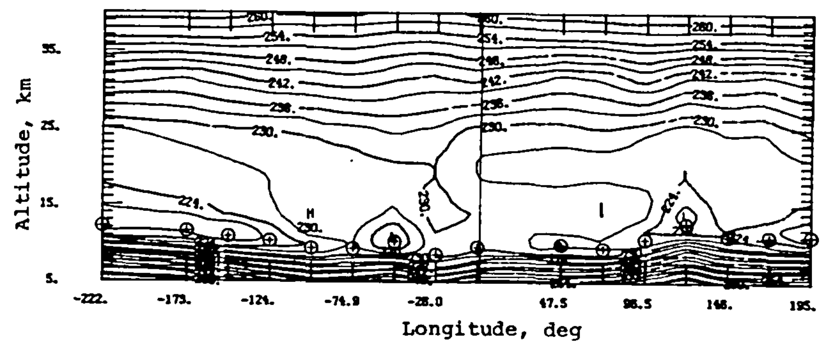
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

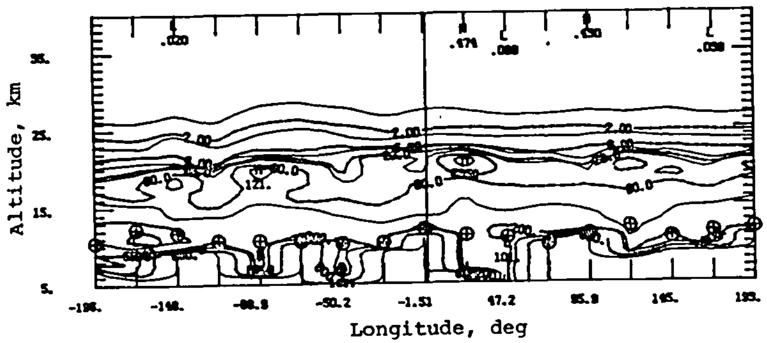


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

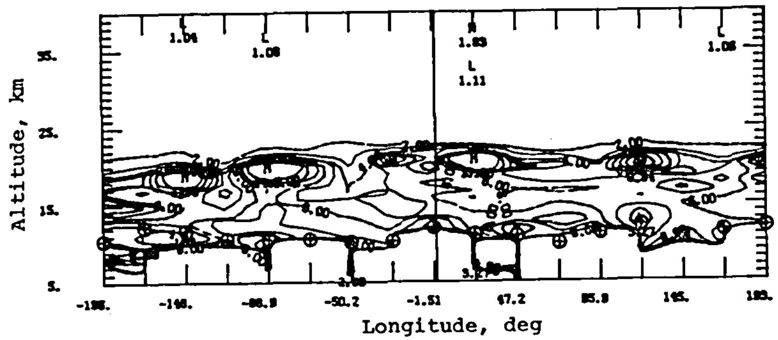


(e) Temperature (kelvin).

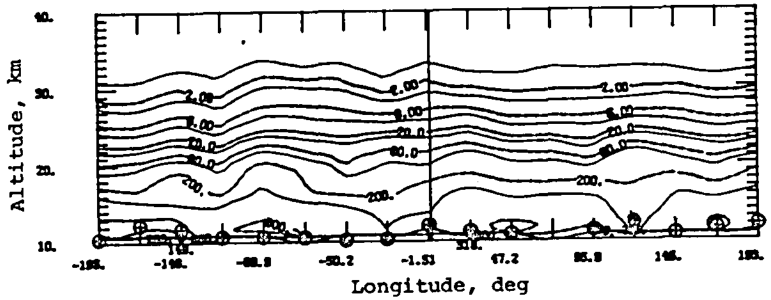
Figure 161. Extinction and temperature isopleths for sweep 16, sunset events, July 24.36–July 25.50, 1980, at 65.6°N to 63.7°N.



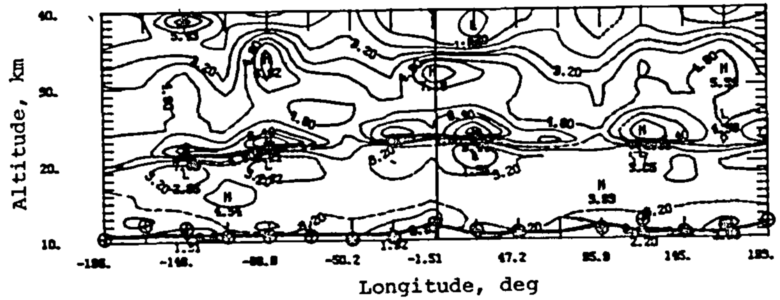
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



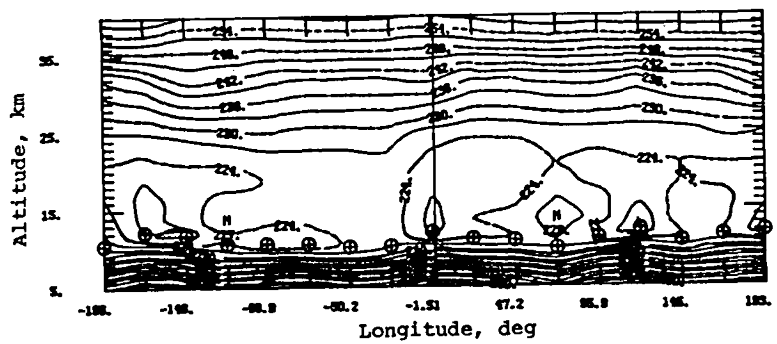
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

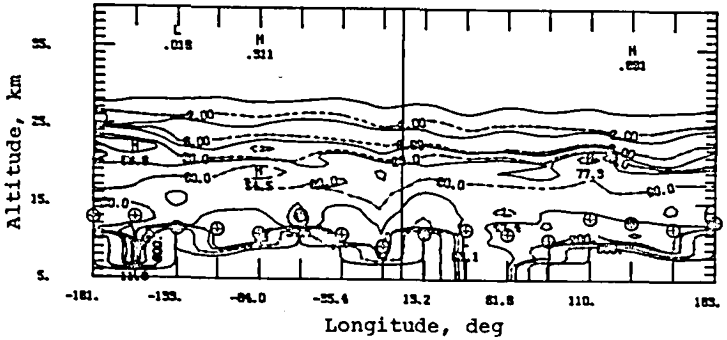


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

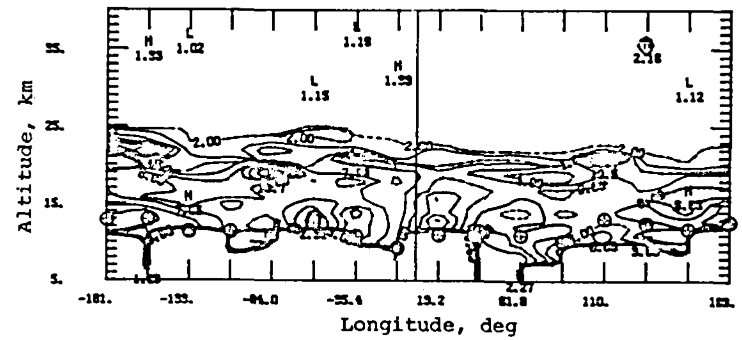


(e) Temperature (kelvin).

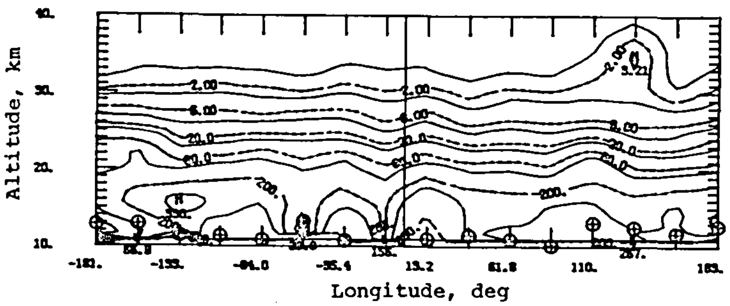
Figure 162. Extinction and temperature isopleths for sweep 16, sunset events, July 28.31–July 29.38, 1980, at 58.0°N to 55.5°N.



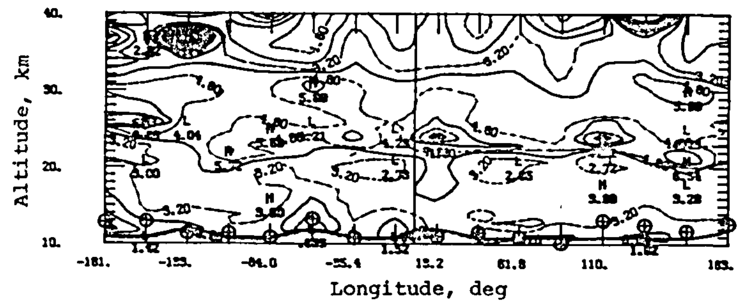
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



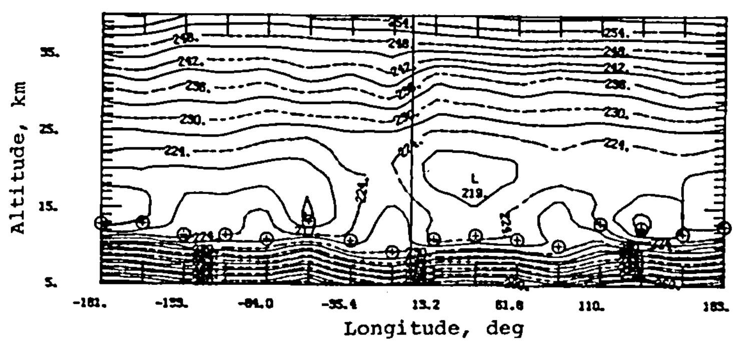
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

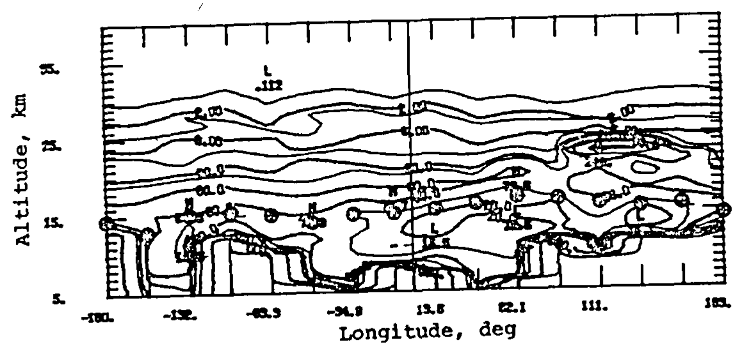


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

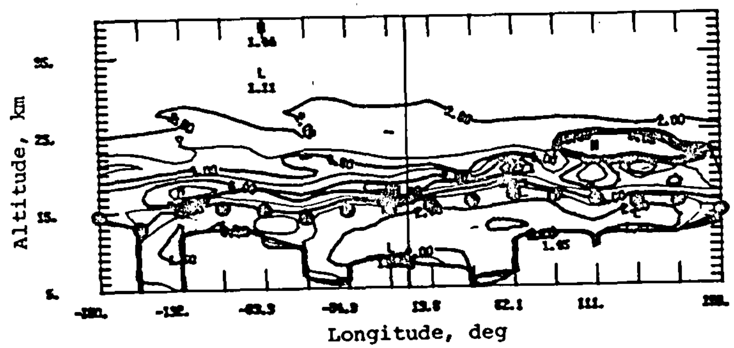


(e) Temperature (kelvin).

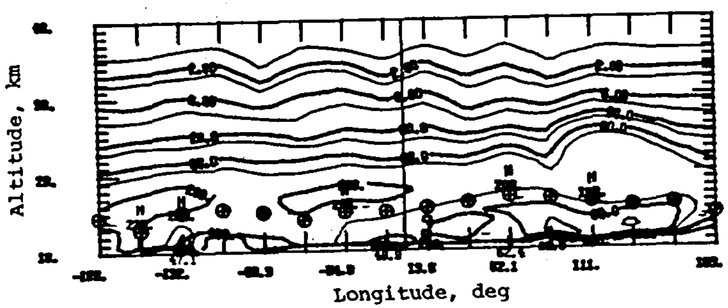
Figure 163. Extinction and temperature isopleths for sweep 16, sunset events, July 30.32–July 31.32, 1980, at 53.1°N to 50.5°N.



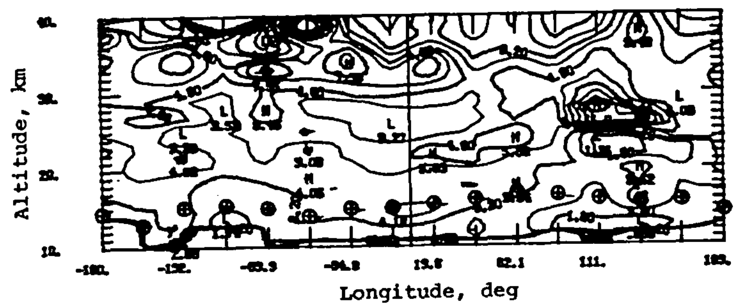
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



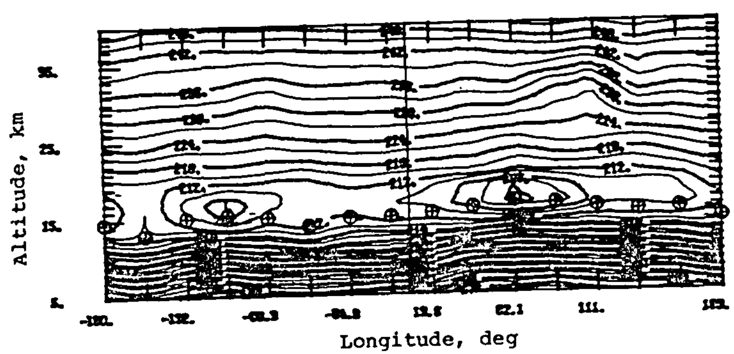
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

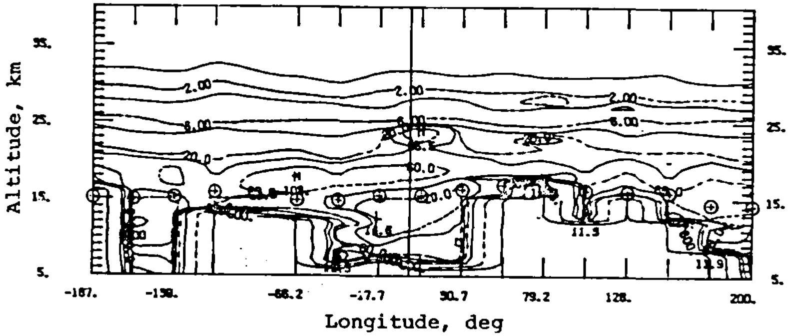


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

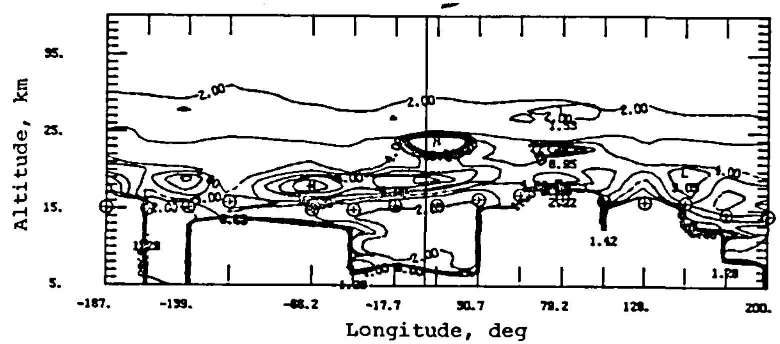


(e) Temperature (kelvin).

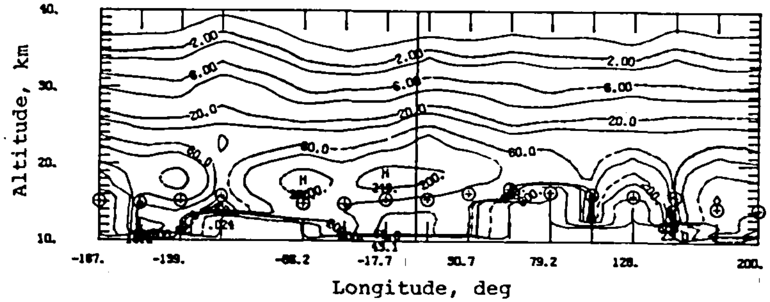
Figure 164. Extinction and temperature isopleths for sweep 16, sunset events, August 5.28–August 6.28, 1980, at 34.0°N to 29.8°N.



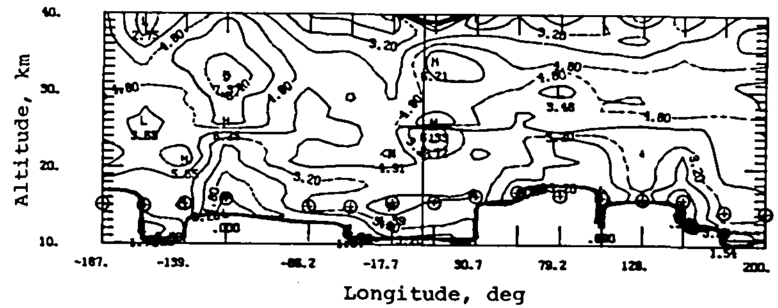
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



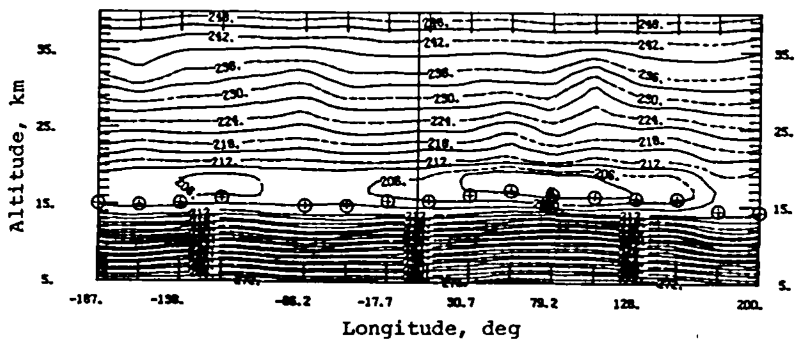
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

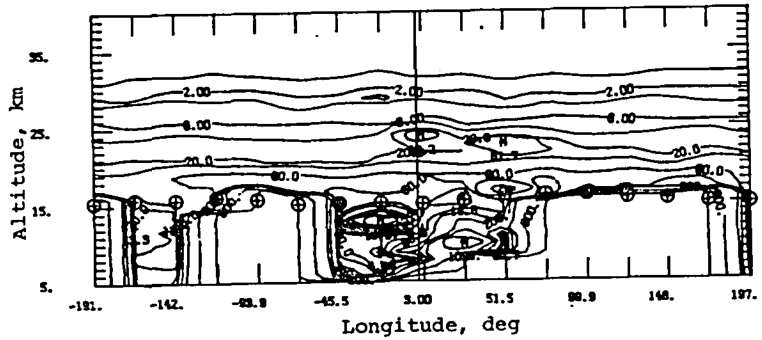


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

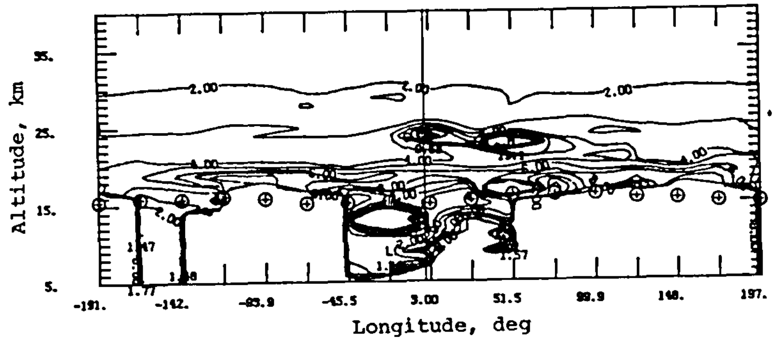


(e) Temperature (kelvin).

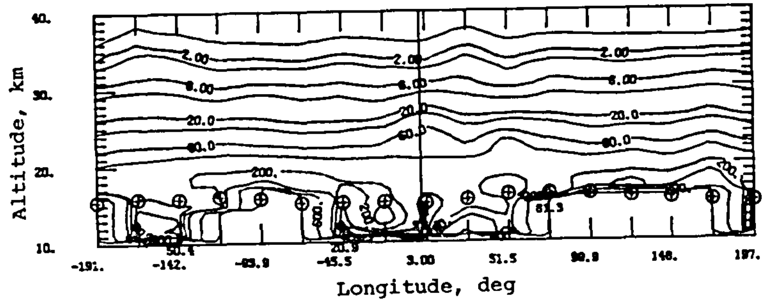
Figure 165. Extinction and temperature isopleths for sweep 16, sunset events, August 7.22–August 8.29, 1980, at 25.6°N to 20.5°N.



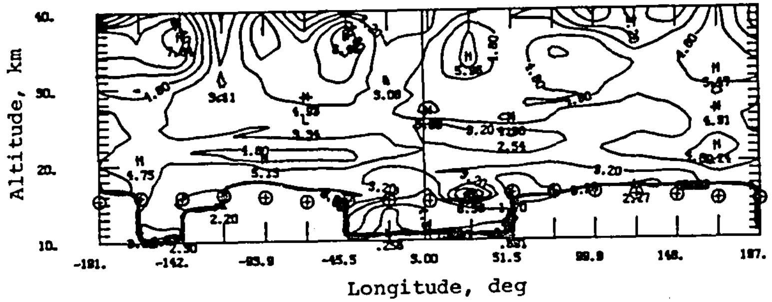
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



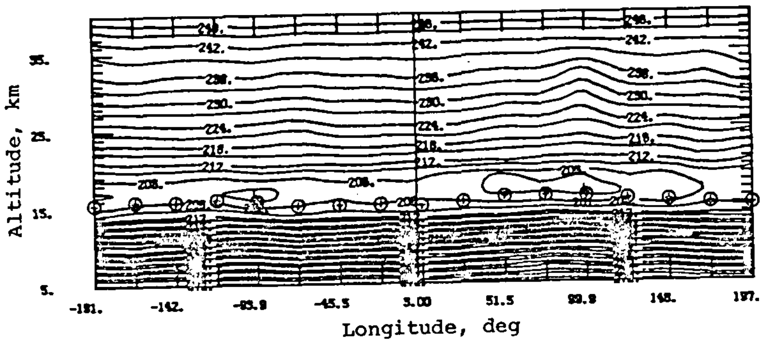
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

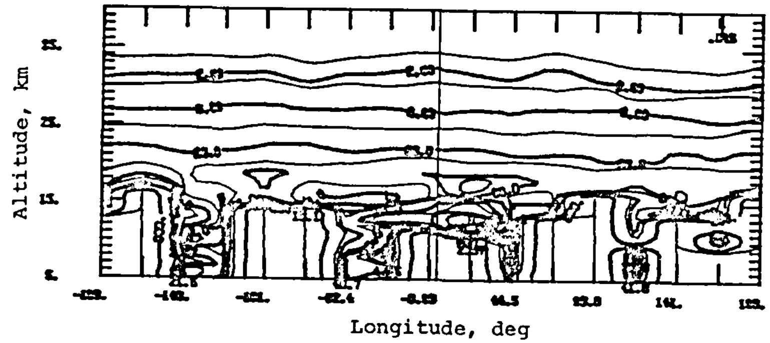


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

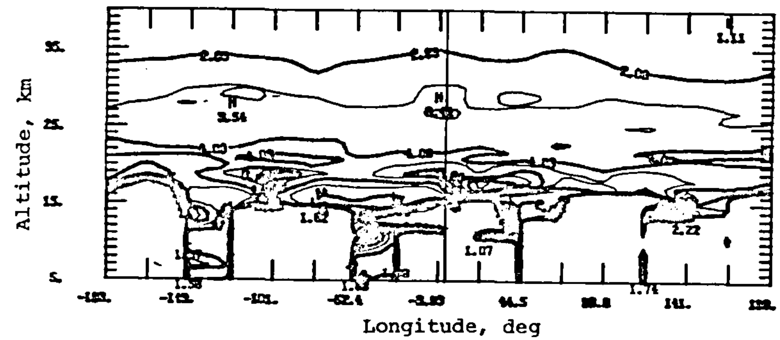


(e) Temperature (kelvin).

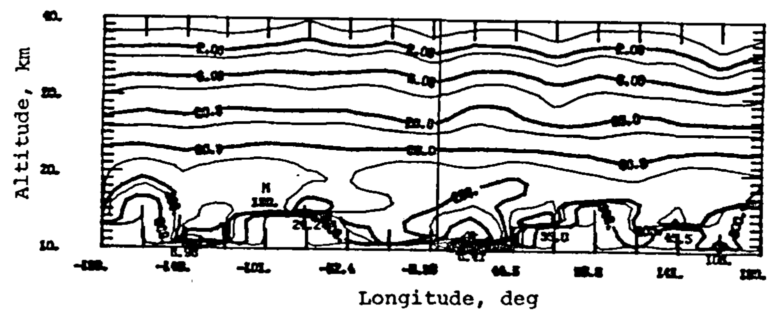
Figure 166. Extinction and temperature isopleths for sweep 16, sunset events, August 8.23–August 9.30, 1980, at 20.8°N to 15.3°N.



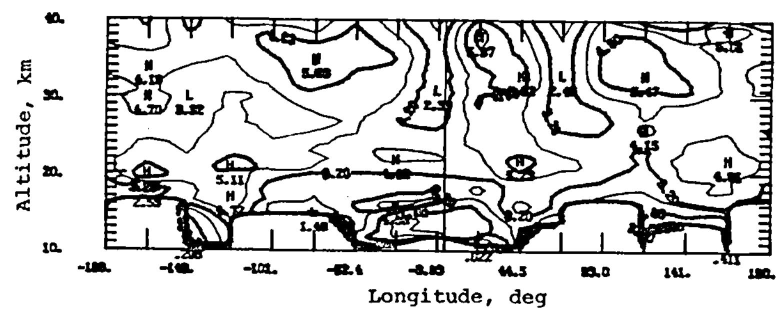
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



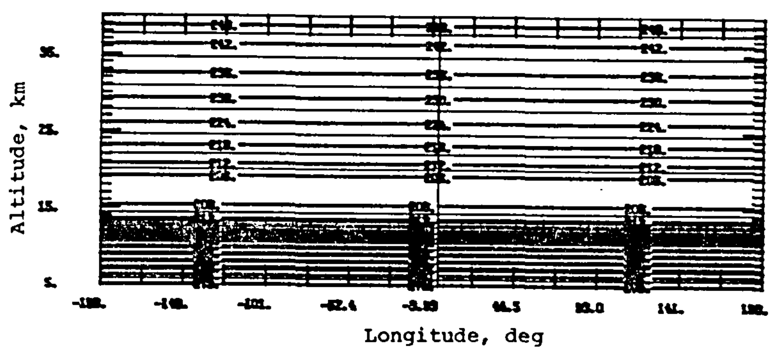
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

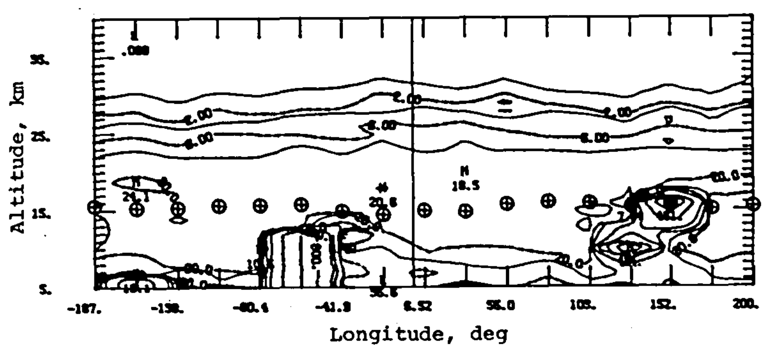


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

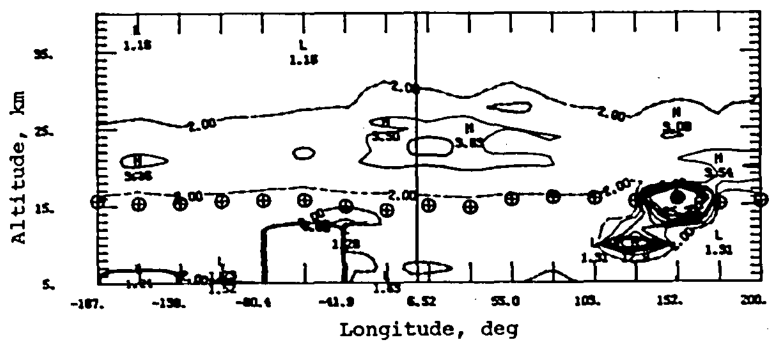


(e) Temperature (kelvin).

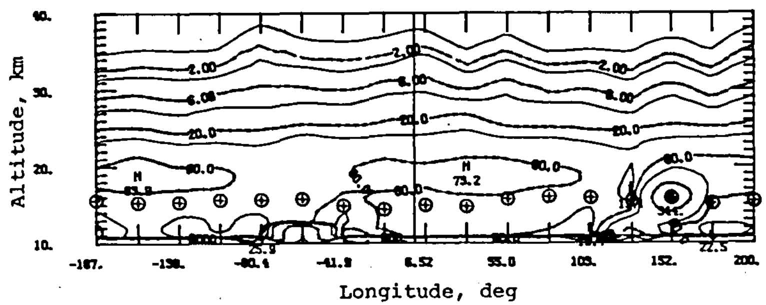
Figure 167. Extinction and temperature isopleths for sweep 16, sunset events, August 10.24–August 11.31, 1980, at 10.2°N to 4.0°N.



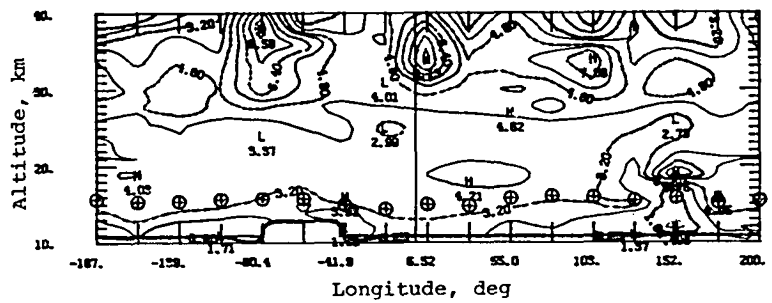
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



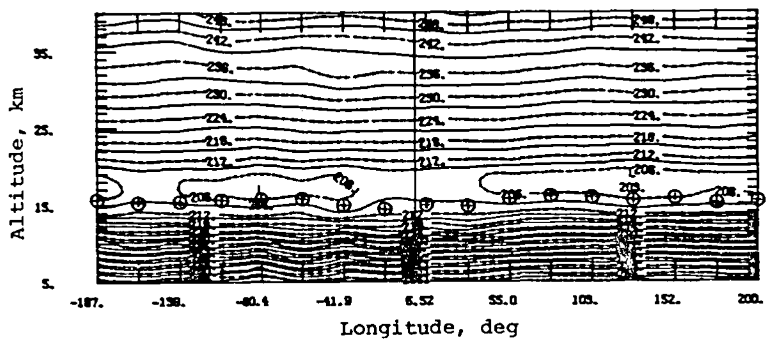
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

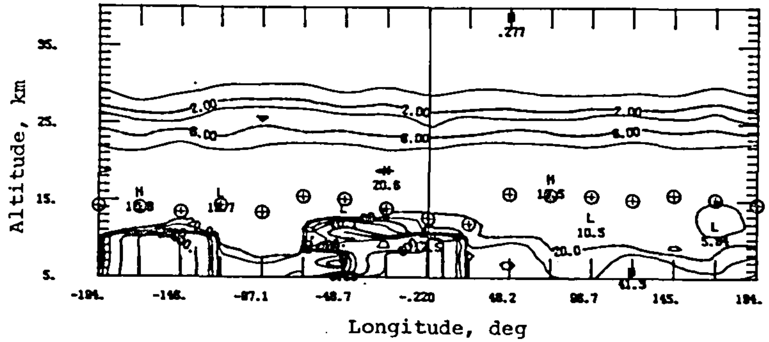


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

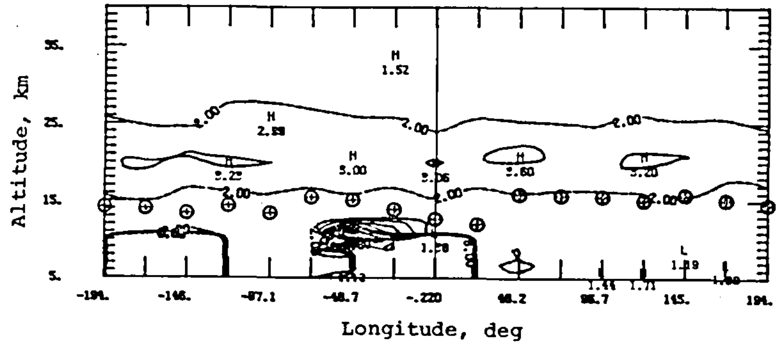


(e) Temperature (kelvin).

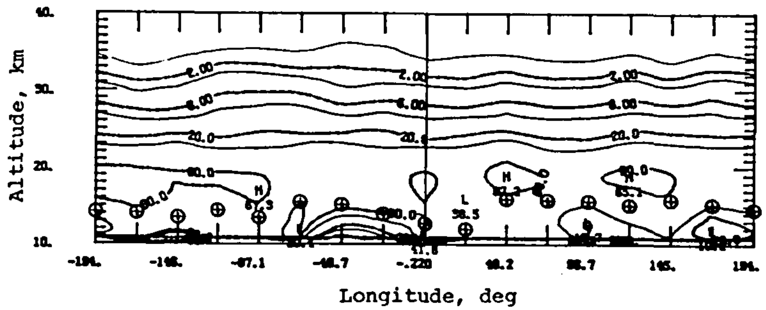
Figure 168. Extinction and temperature isopleths for sweep 16, sunset events, August 14.19–August 15.26, 1980, at 13.7°S to 20.2°S.



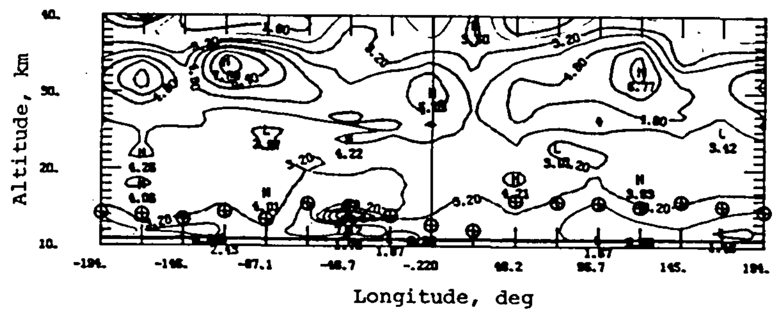
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



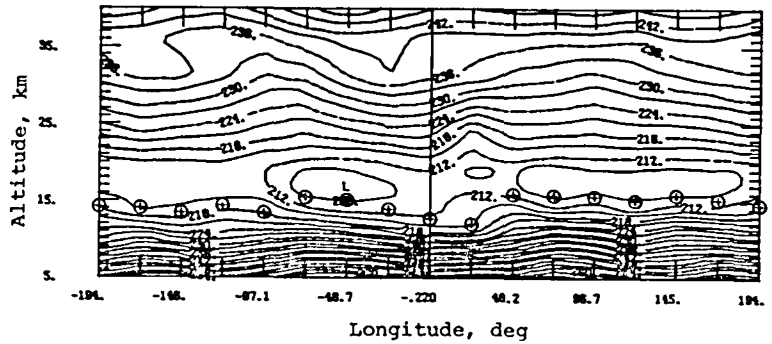
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

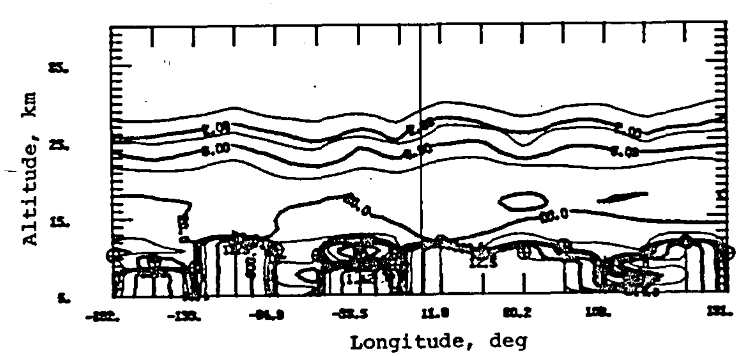


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

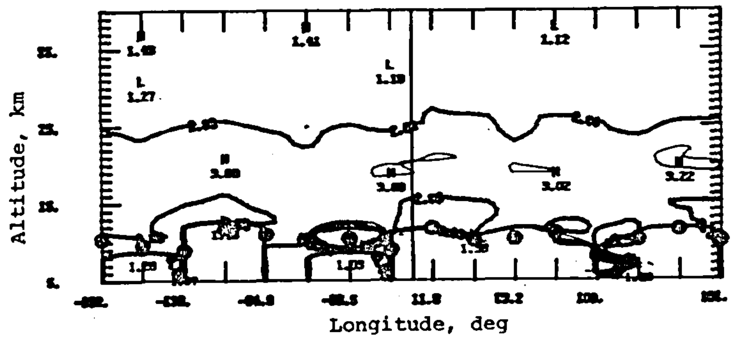


(e) Temperature (kelvin).

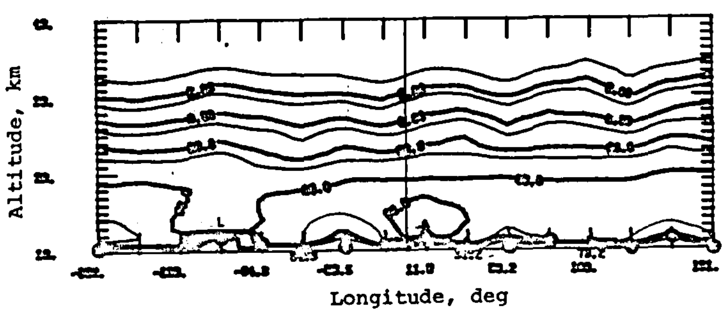
Figure 169. Extinction and temperature isopleths for sweep 16, sunset events, August 16.2–August 17.27, 1980, at 25.7°S to 31.4°S.



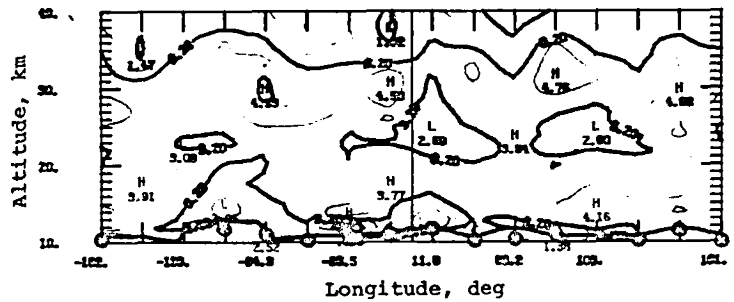
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



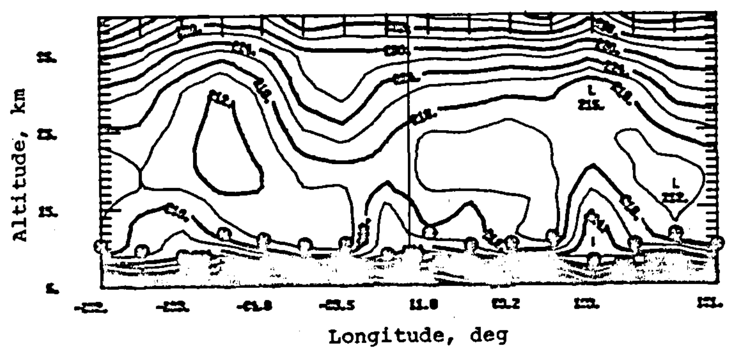
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

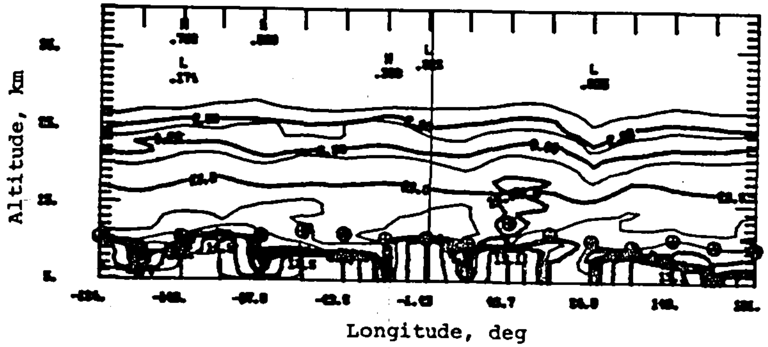


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

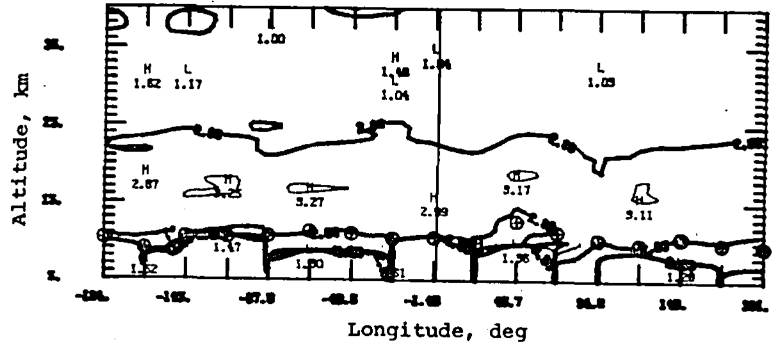


(e) Temperature (kelvin).

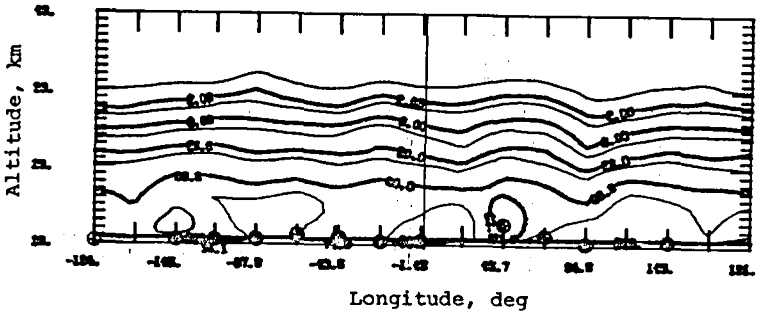
Figure 170. Extinction and temperature isopleths for sweep 16, sunset events, August 20.22–August 21.22, 1980, at 43.8°S to 46.8°S.



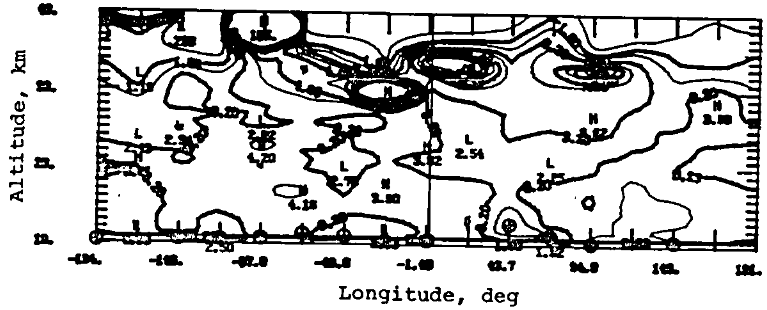
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



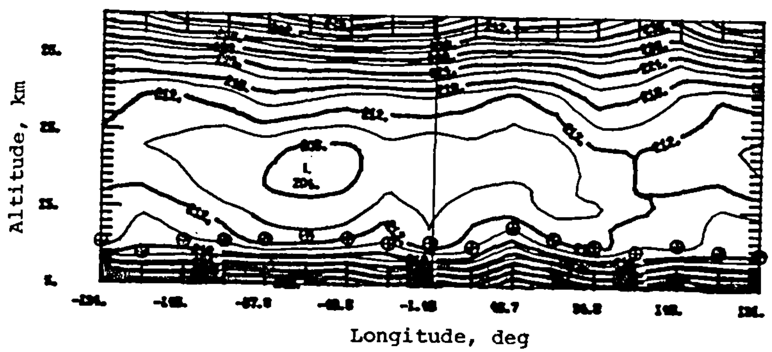
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

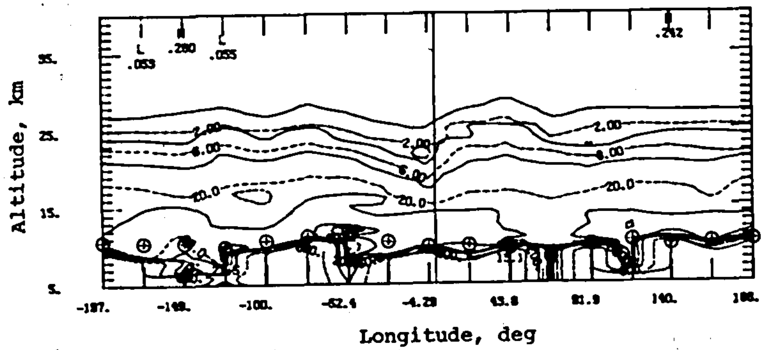


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

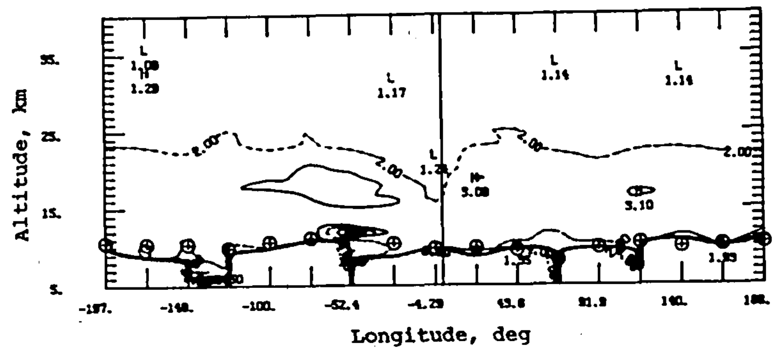


(e) Temperature (kelvin).

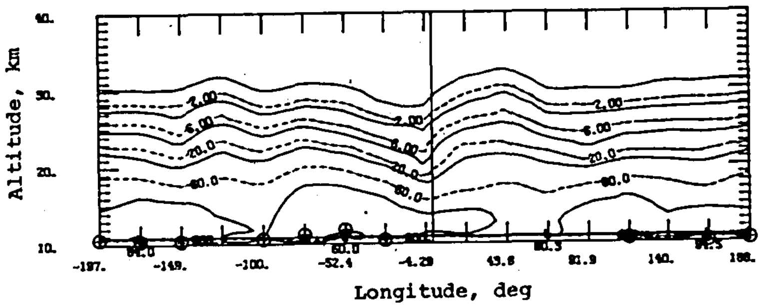
Figure 171. Extinction and temperature isopleths for sweep 16, sunset events, August 27.18–August 28.25, 1980, at 55.4°S to 55.6°S.



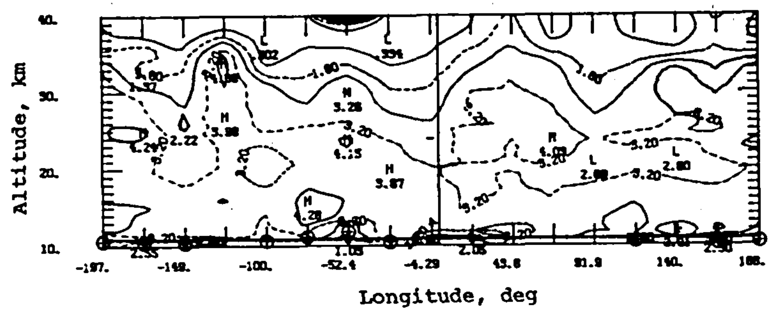
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



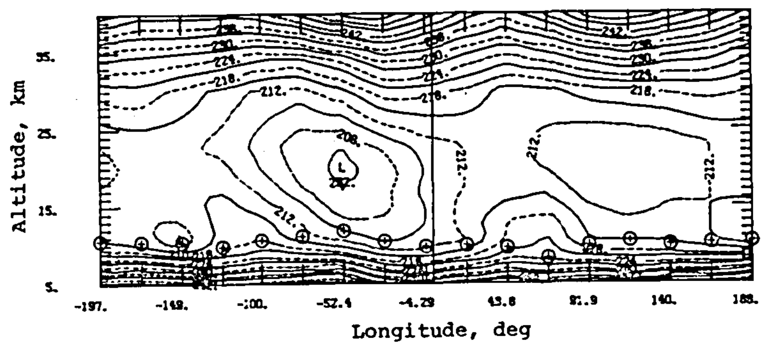
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

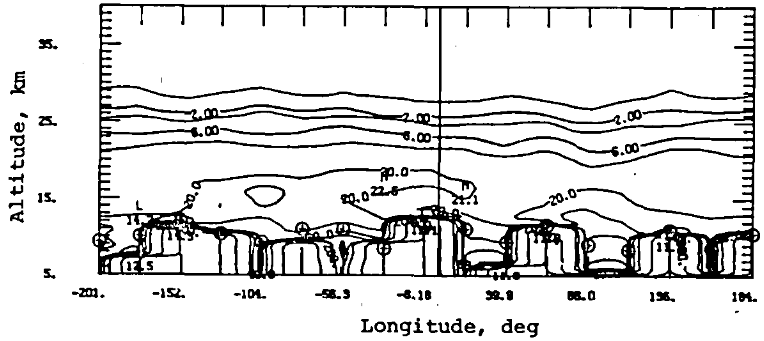


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

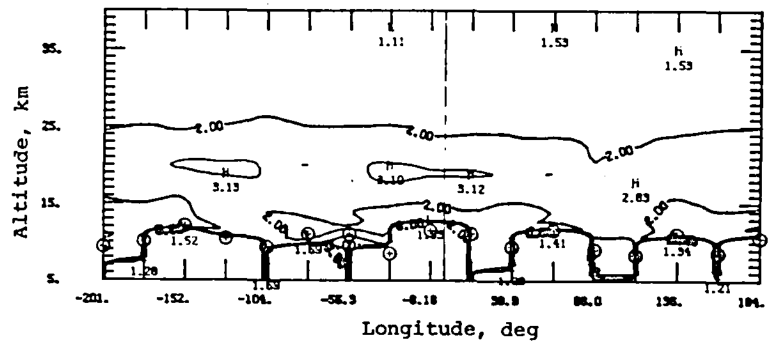


(e) Temperature (kelvin).

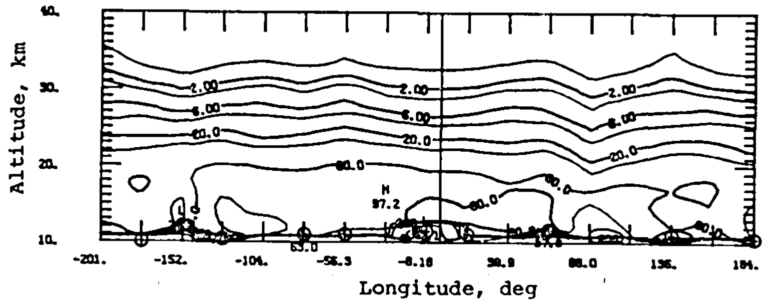
Figure 172. Extinction and temperature isopleths for sweep 17, sunset events, August 30.19–August 31.26, 1980, at 55.2°S to 54.5°S.



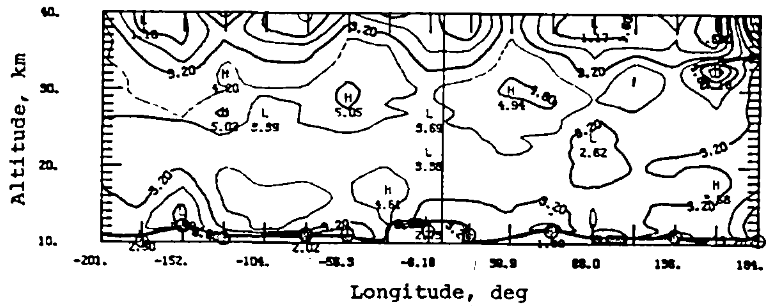
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



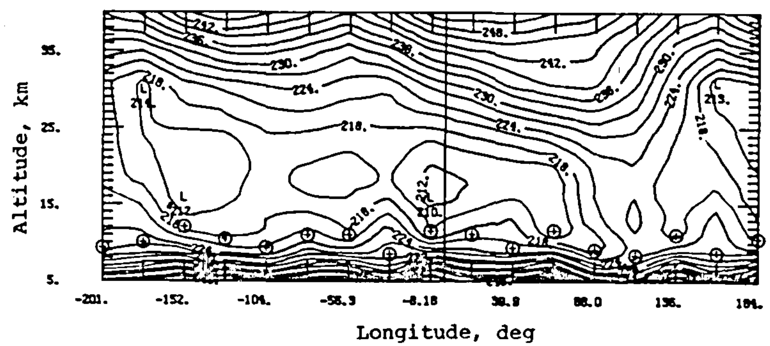
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

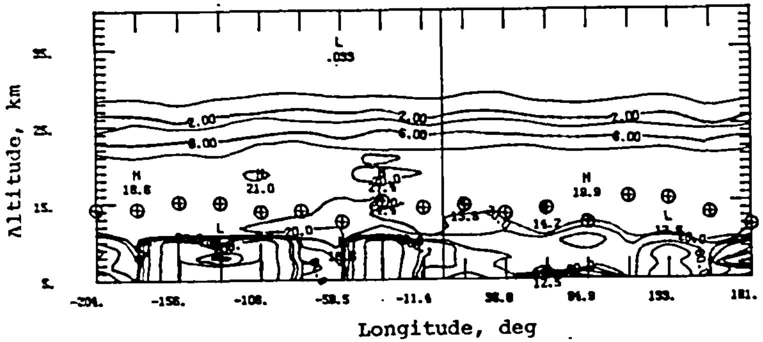


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

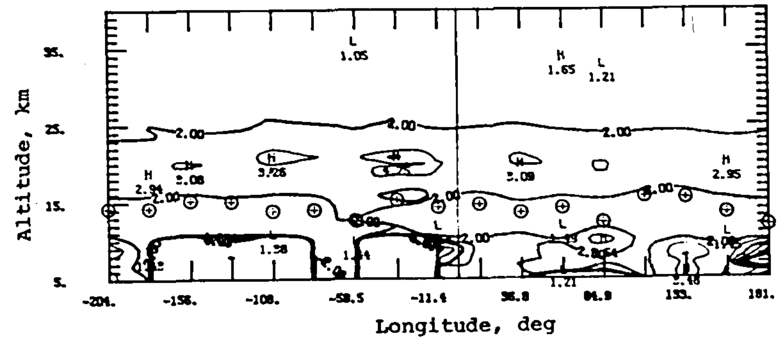


(e) Temperature (kelvin).

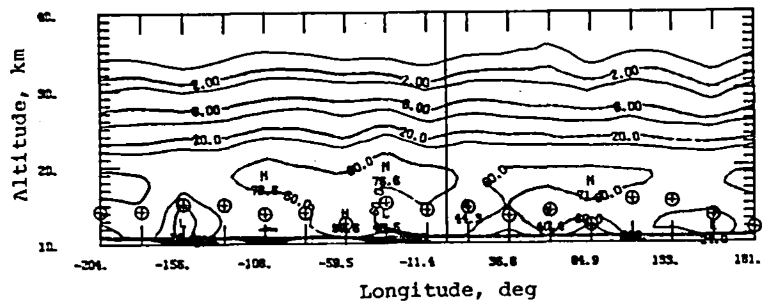
Figure 173. Extinction and temperature isopleths for sweep 17, sunset events, September 5.22–September 6.29, 1980, at 47.2°S to 44.6°S.



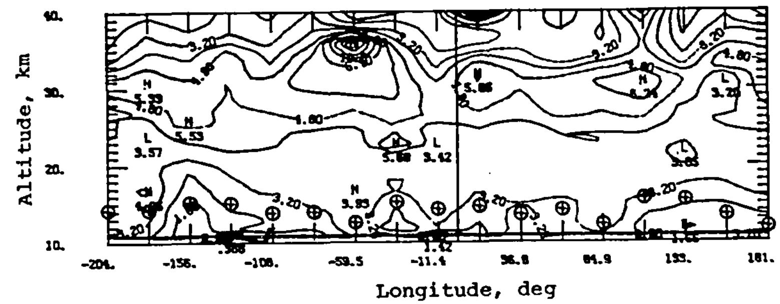
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



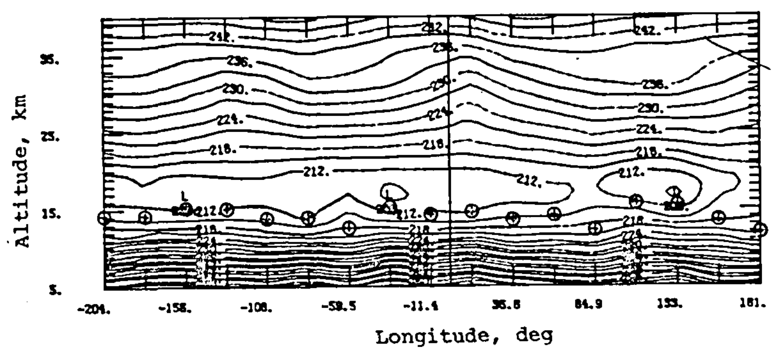
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

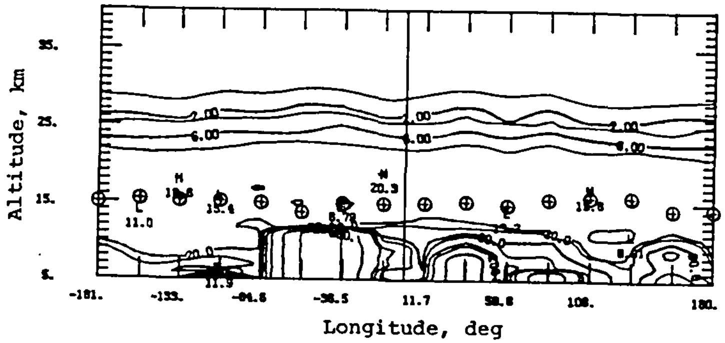


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

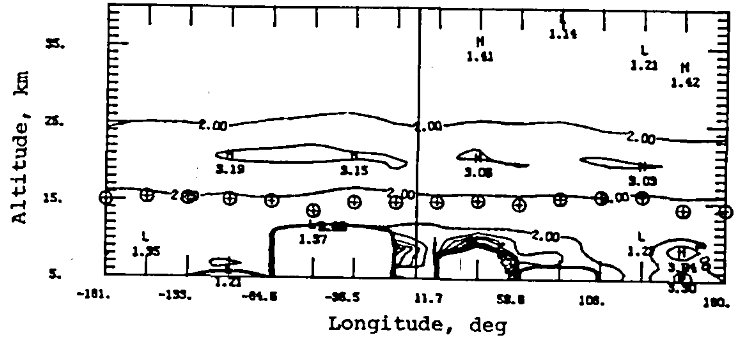


(e) Temperature (kelvin).

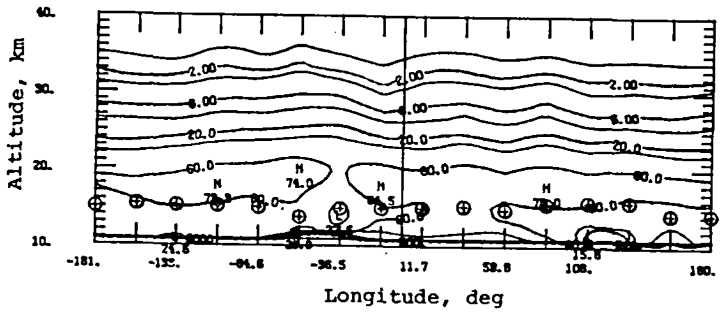
Figure 174. Extinction and temperature isopleths for sweep 17, sunset events, September 9.24–September 10.31, 1980, at 36.6°S to 29.7°S.



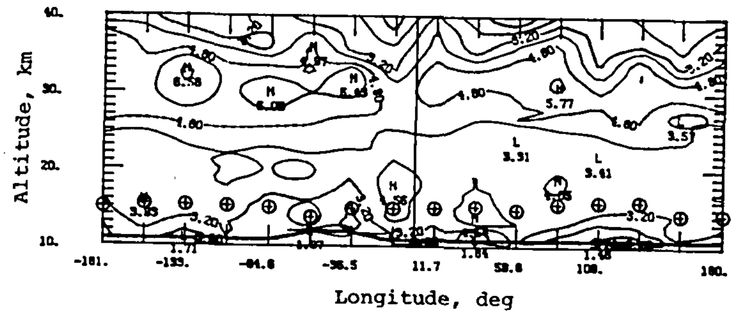
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



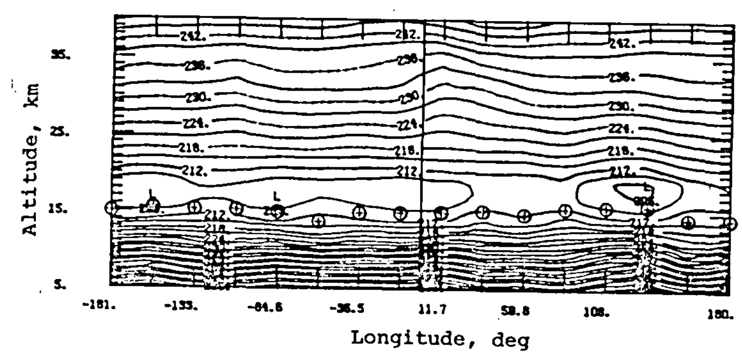
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

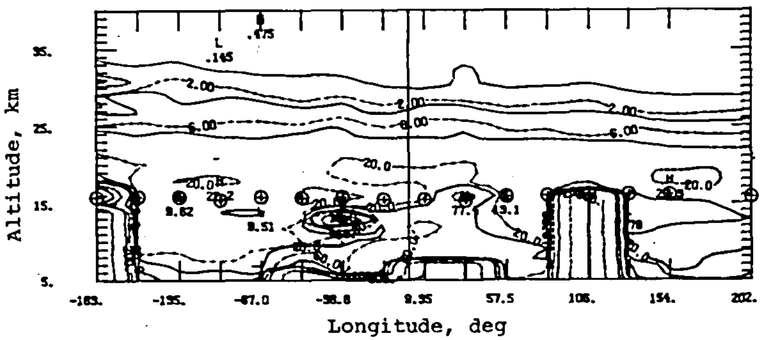


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

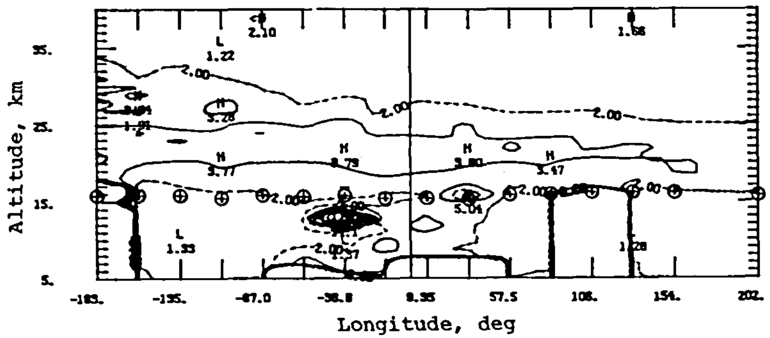


(e) Temperature (kelvin).

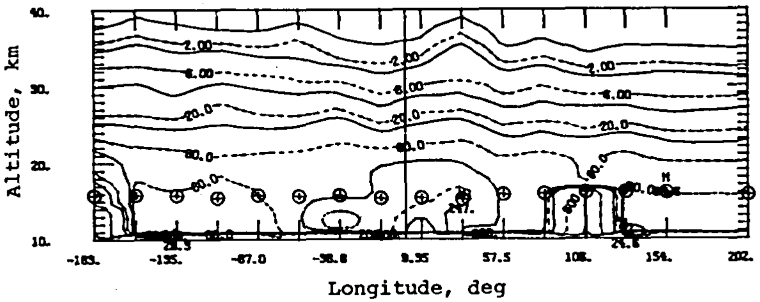
Figure 175. Extinction and temperature isopleths for sweep 17, sunset events, September 10.24–September 11.25, 1980, at 30.1°S to 24.9°S.



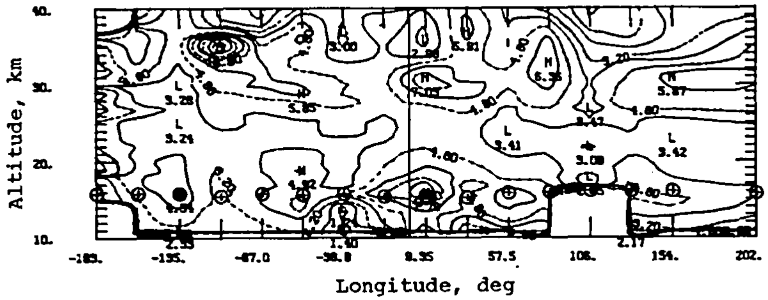
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



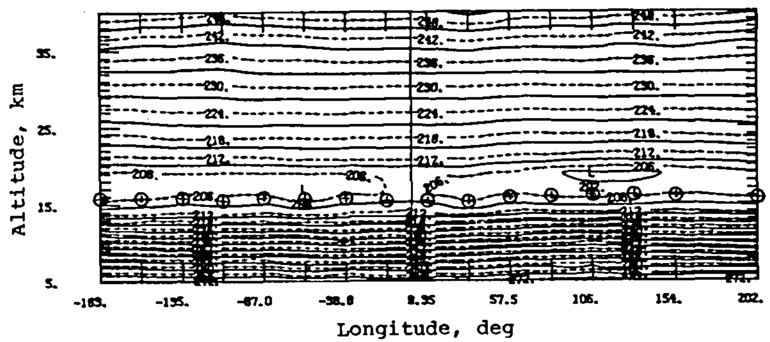
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

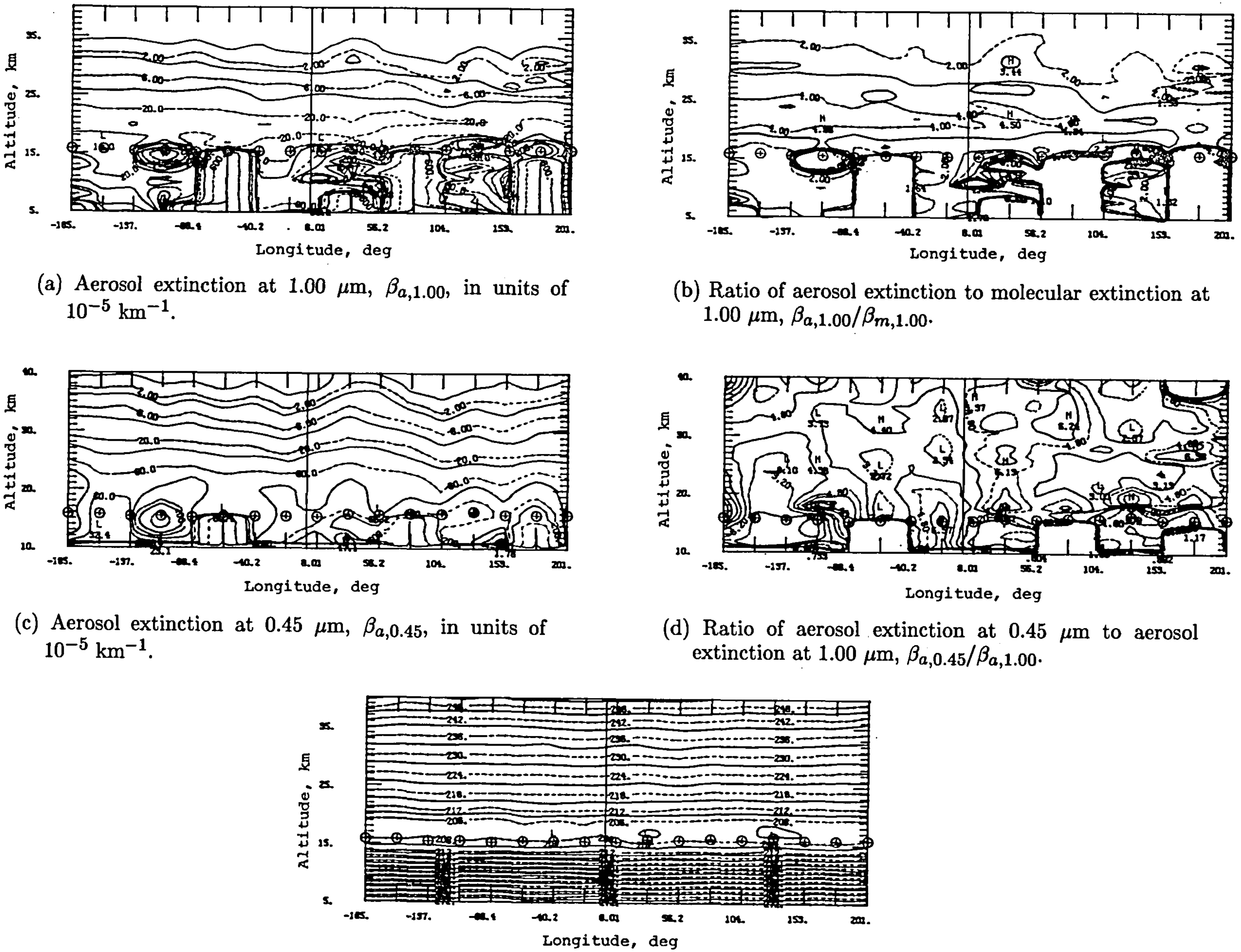


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.



(e) Temperature (kelvin).

Figure 176. Extinction and temperature isopleths for sweep 17, sunset events, September 12.18–September 13.26, 1980, at 19.3°S to 12.2°S.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

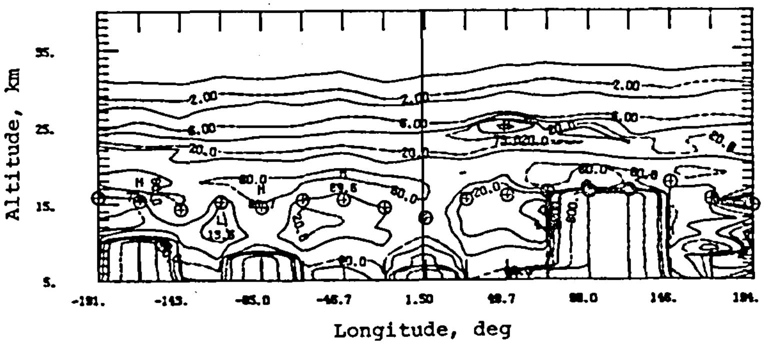
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

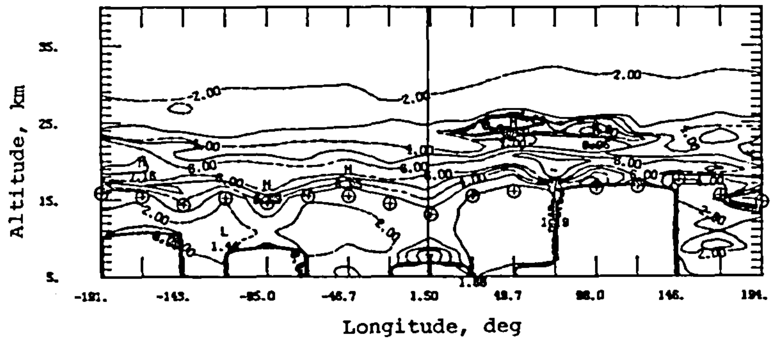
(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

(e) Temperature (kelvin).

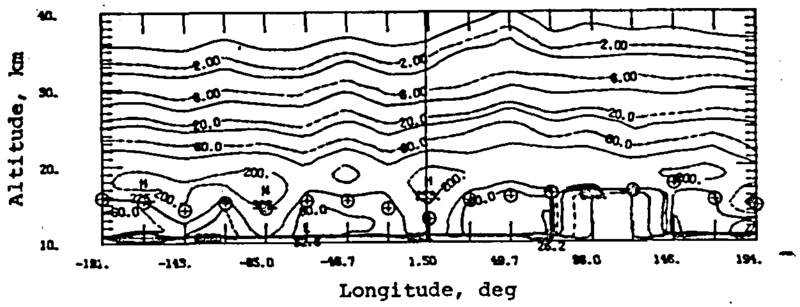
Figure 177. Extinction and temperature isopleths for sweep 17, sunset events, September 13.19–September 14.26, 1980, at 12.6°S to 4.4°S.



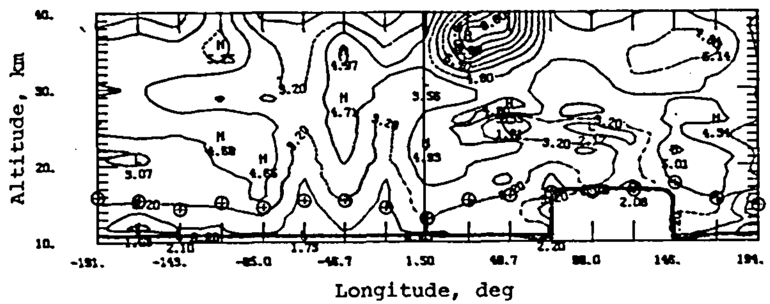
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



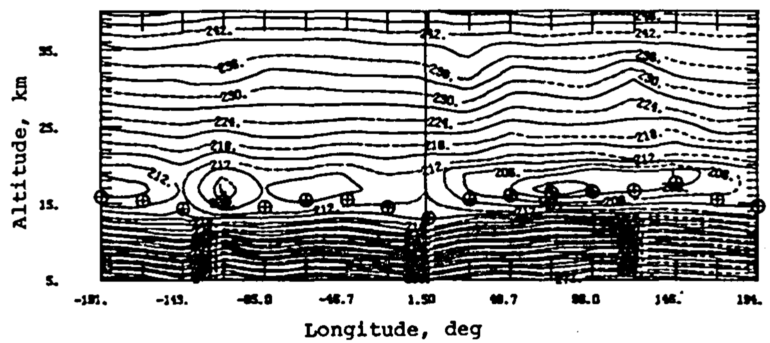
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

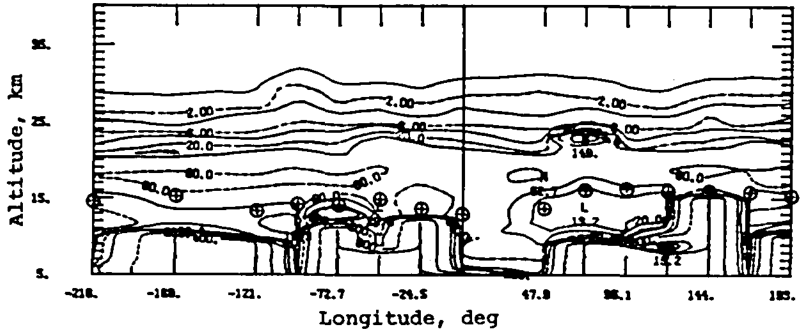


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

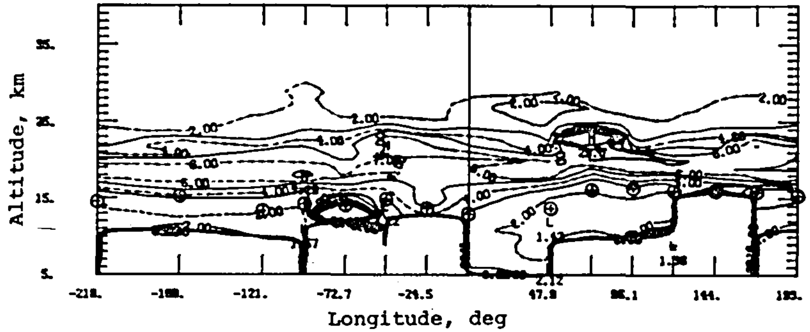


(e) Temperature (kelvin).

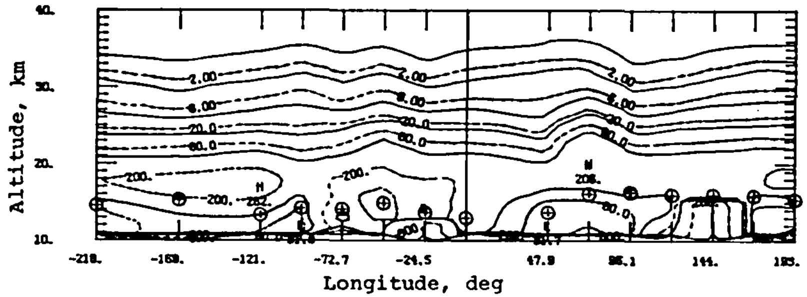
Figure 178. Extinction and temperature isopleths for sweep 17, sunset events, September 17.21–September 18.28, 1980, at 21.5°N to 31.0°N.



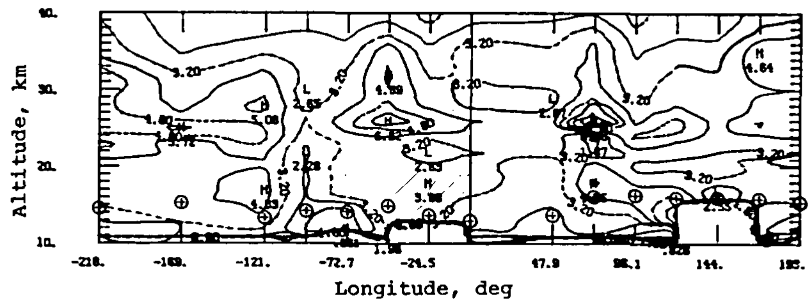
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



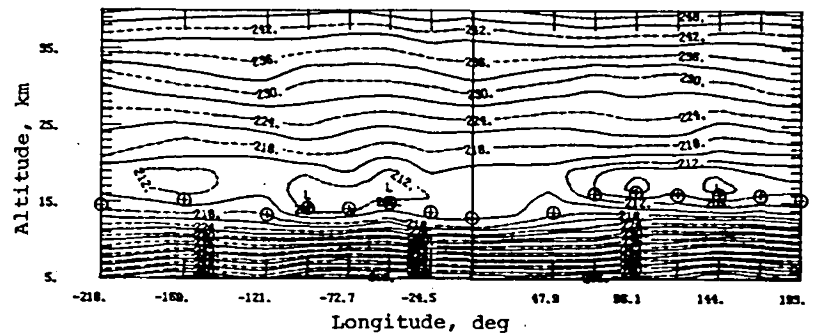
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

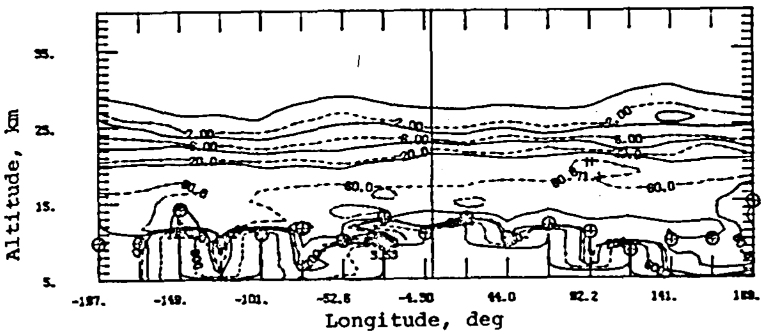


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

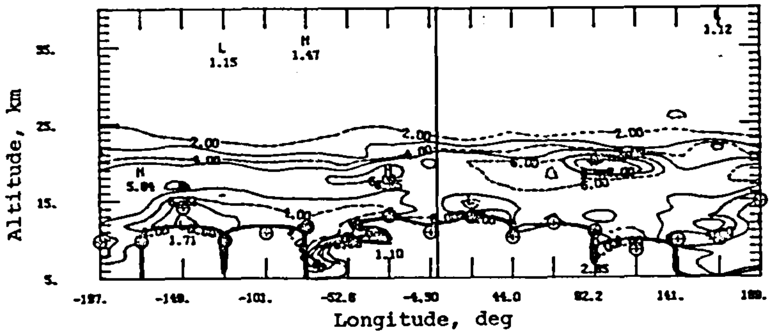


(e) Temperature (kelvin).

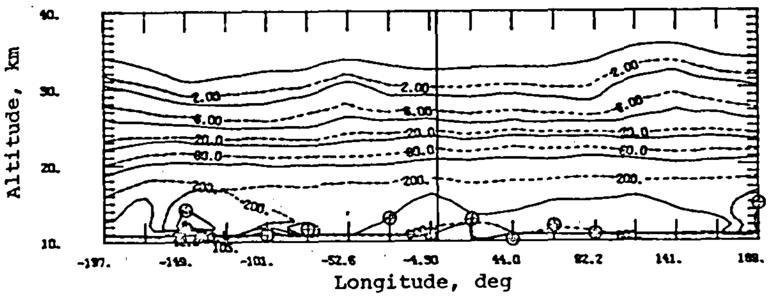
Figure 179. Extinction and temperature isopleths for sweep 17, sunset events, September 18.22–September 19.35, 1980, at 30.4°N to 39.4°N.



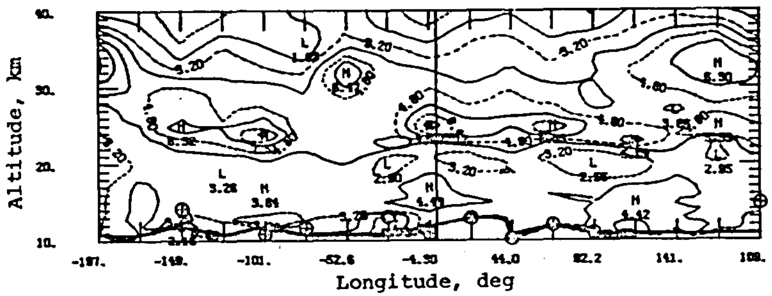
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



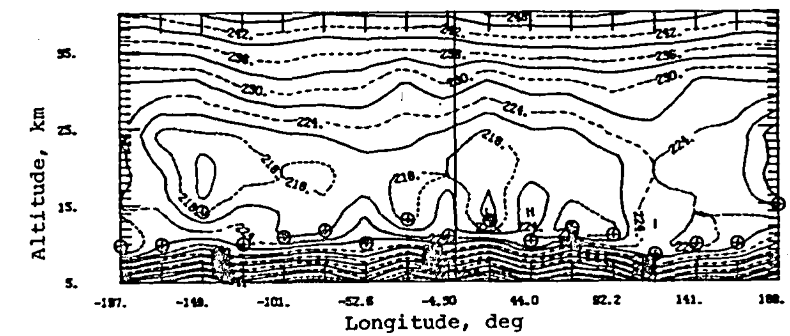
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

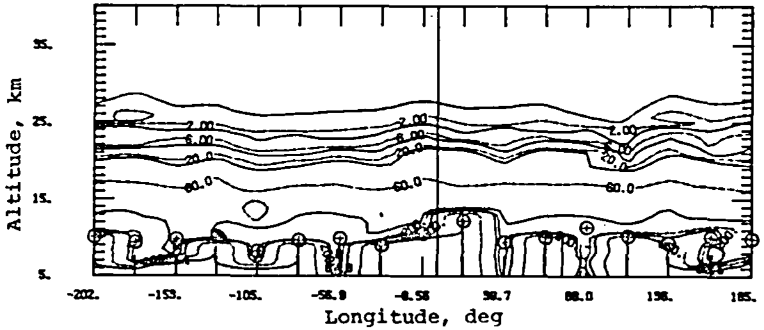


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

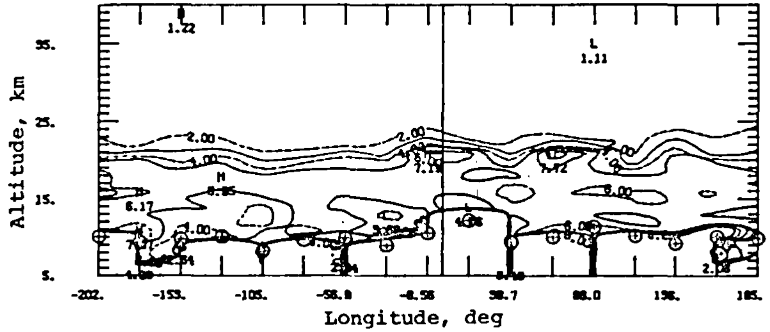


(e) Temperature (kelvin).

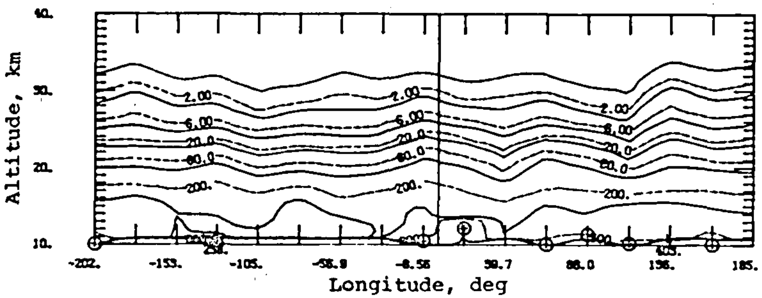
Figure 180. Extinction and temperature isopleths for sweep 17, sunset events, September 20.23–September 21.30, 1980, at 45.2°N to 50.8°N.



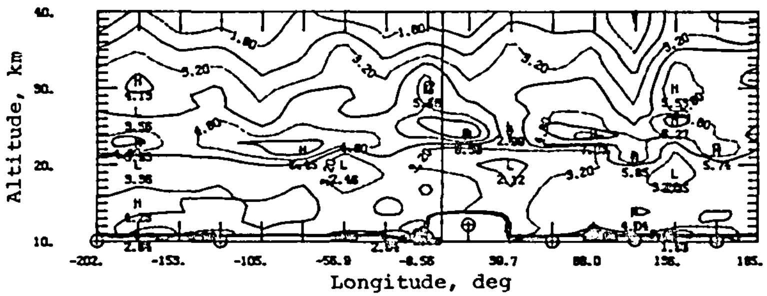
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



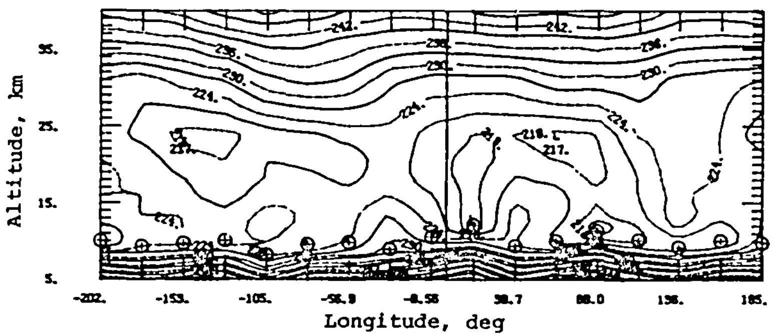
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

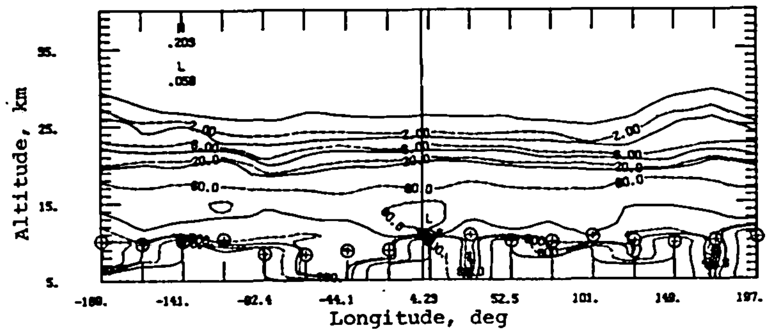


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

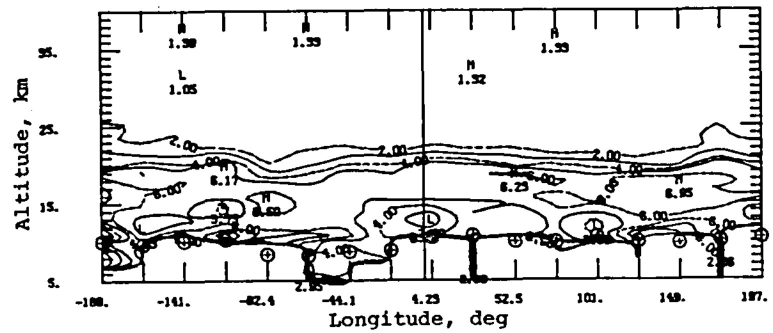


(e) Temperature (kelvin).

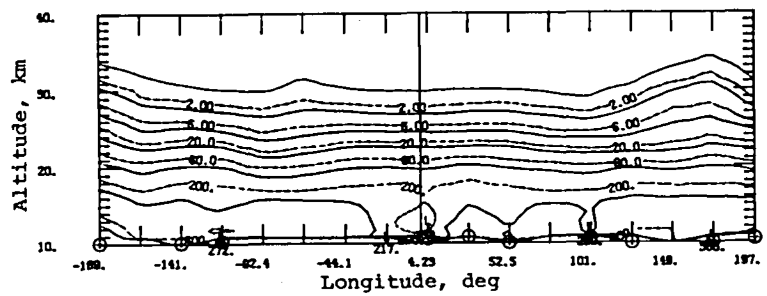
Figure 181. Extinction and temperature isopleths for sweep 17, sunset events, September 22.23–September 23.31, 1980, at 54.5°N to 57.5°N.



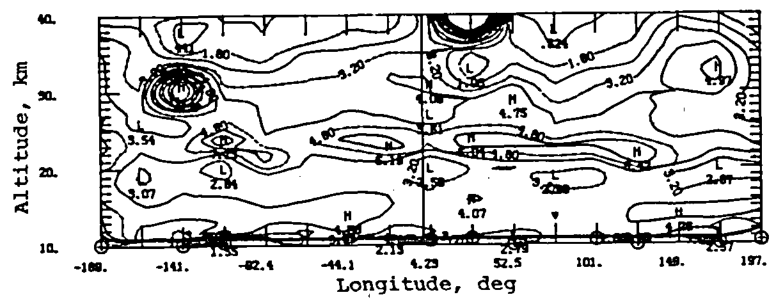
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



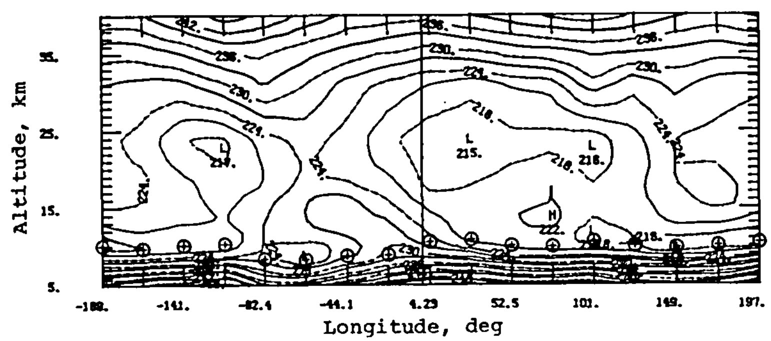
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

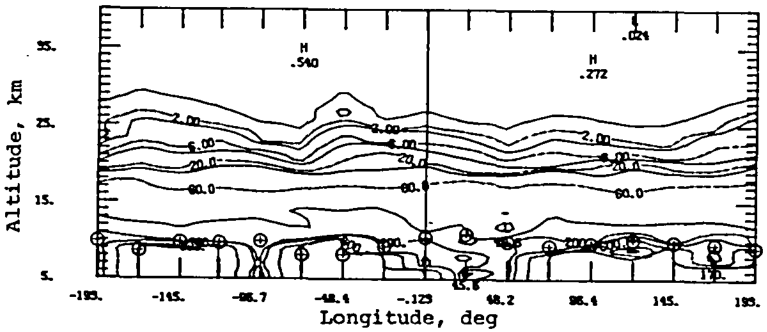


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

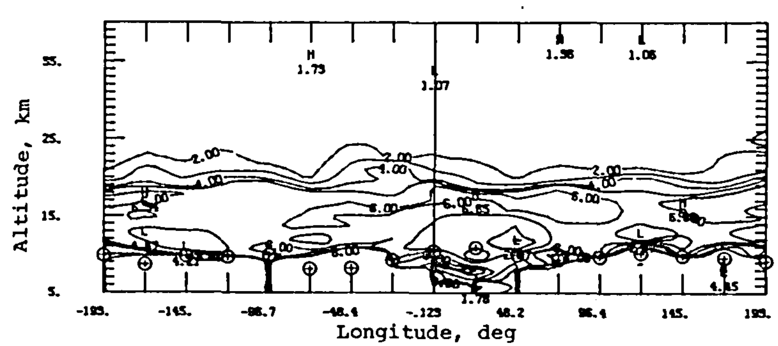


(e) Temperature (kelvin).

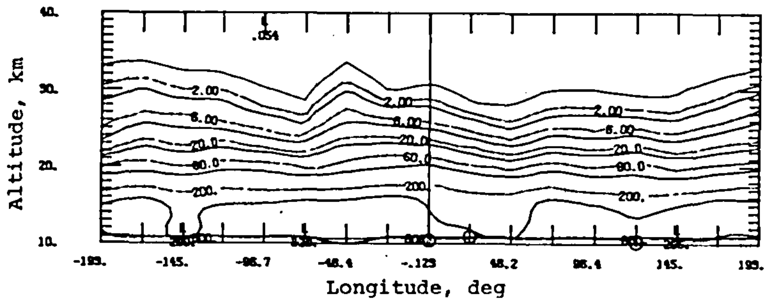
Figure 182. Extinction and temperature isopleths for sweep 18, sunset events, September 27.19–September 28.26, 1980, at 61.6°N to 61.7°N.



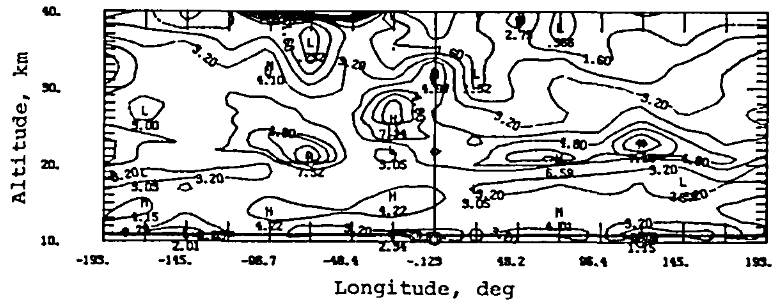
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



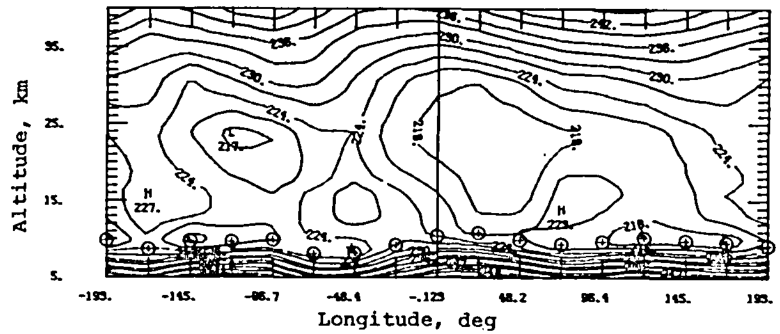
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

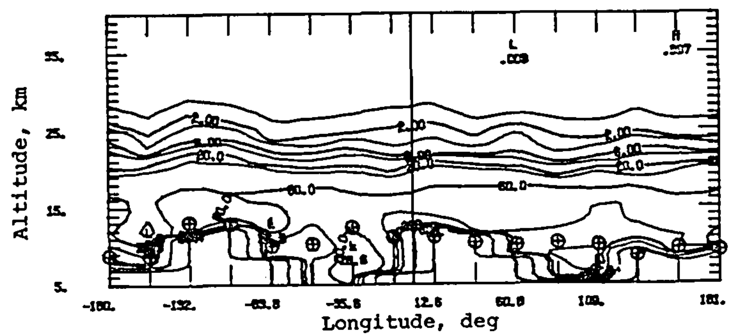


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

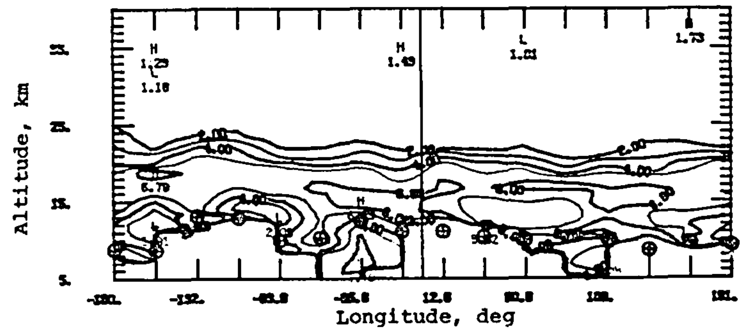


(e) Temperature (kelvin).

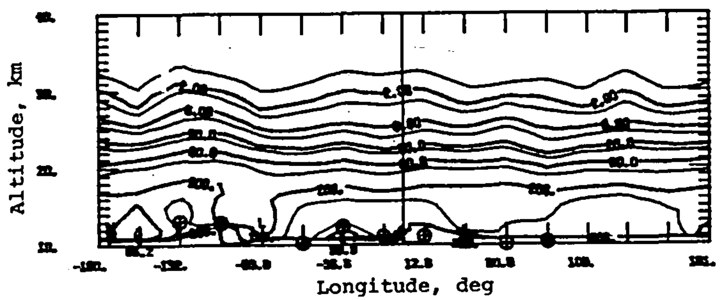
Figure 183. Extinction and temperature isopleths for sweep 18, sunset events, September 29.20–September 30.27, 1980, at 61.5°N to 61.0°N.



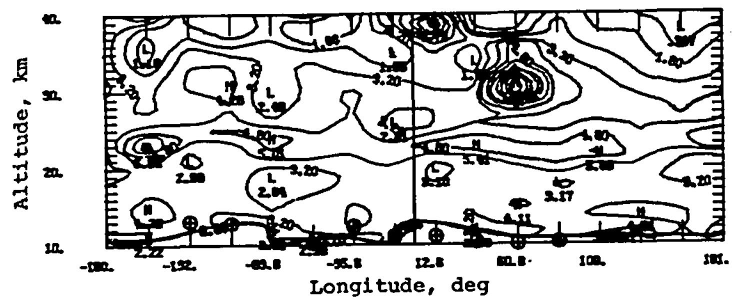
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



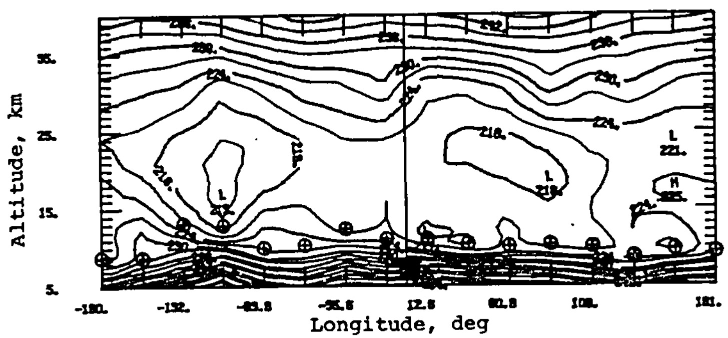
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

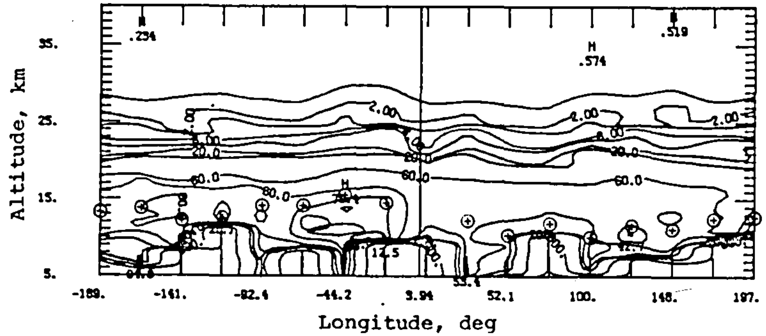


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

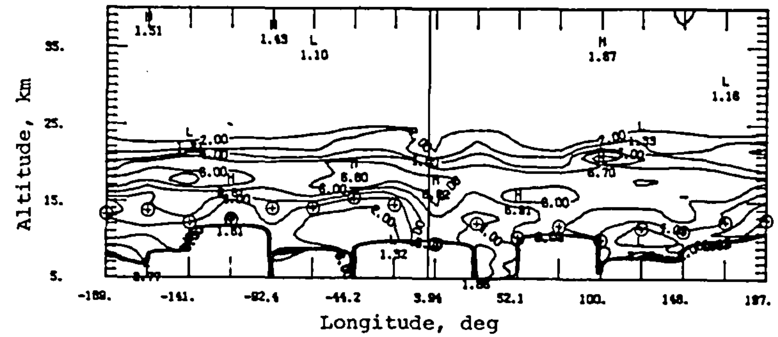


(e) Temperature (kelvin).

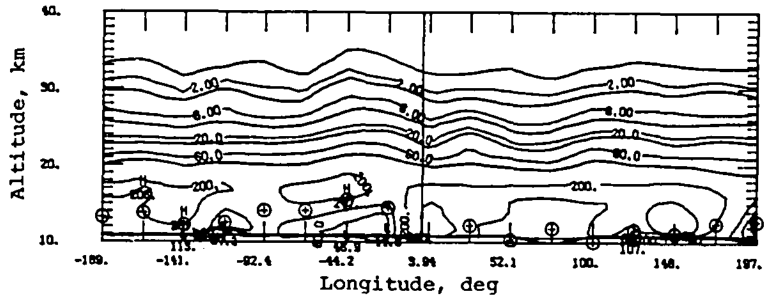
Figure 184. Extinction and temperature isopleths for sweep 18, sunset events, October 5.22–October 6.22, 1980, at 56.6°N to 55.2°N.



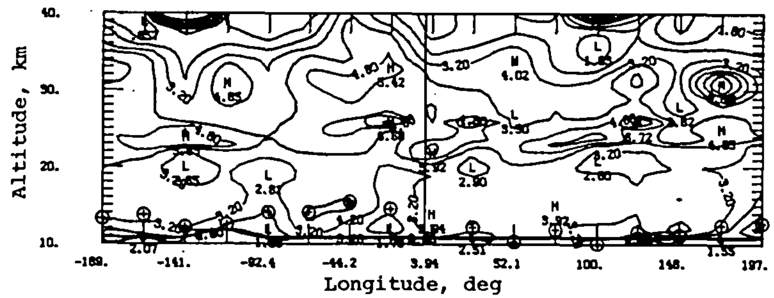
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



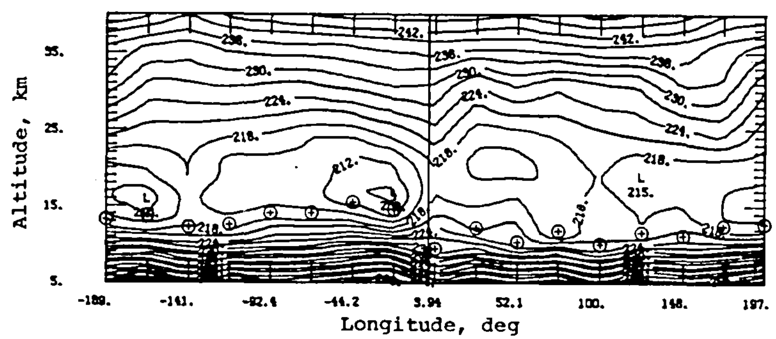
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

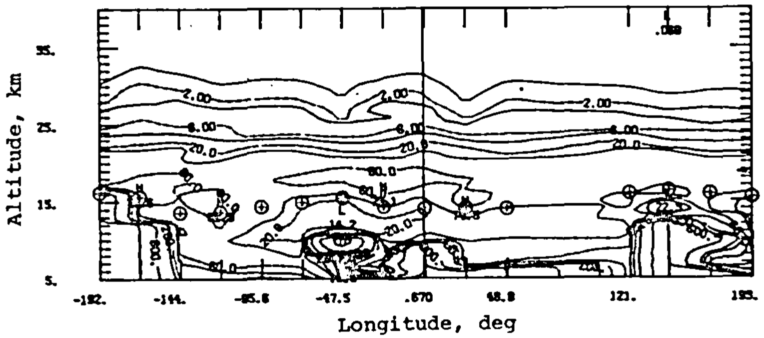


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

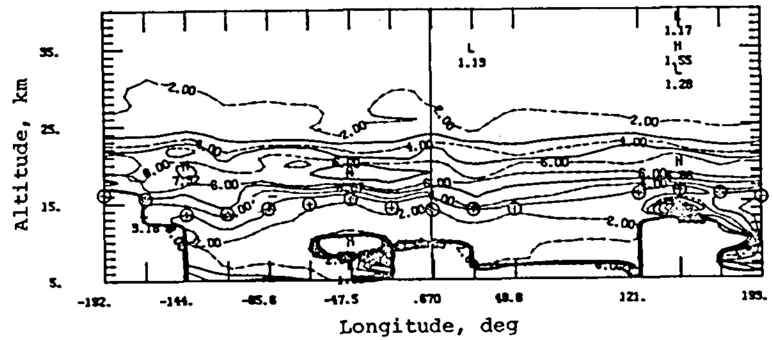


(e) Temperature (kelvin).

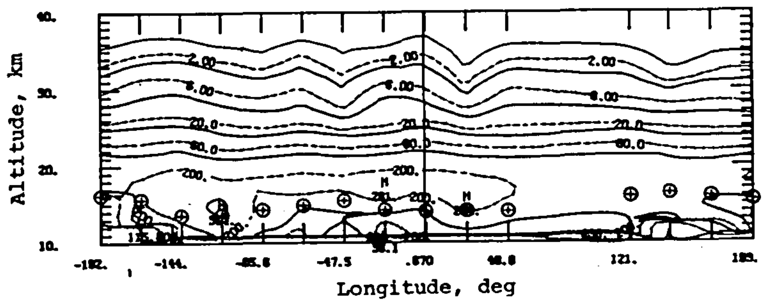
Figure 185. Extinction and temperature isopleths for sweep 18, sunset events, October 11.18–October 12.25, 1980, at 45.6°N to 42.7°N.



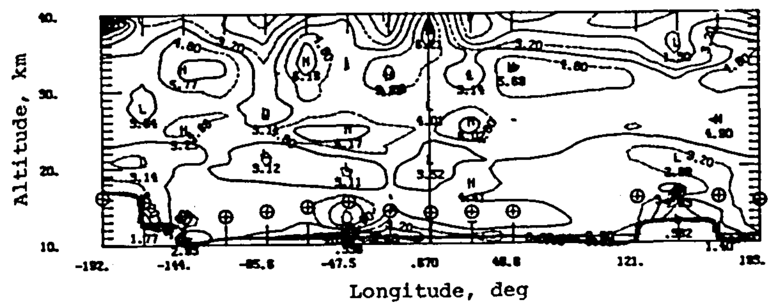
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



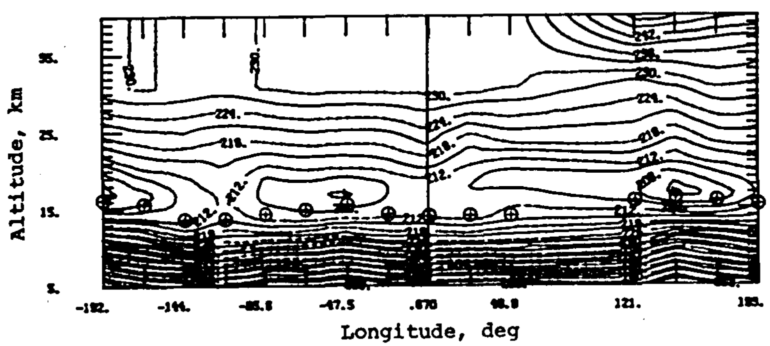
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

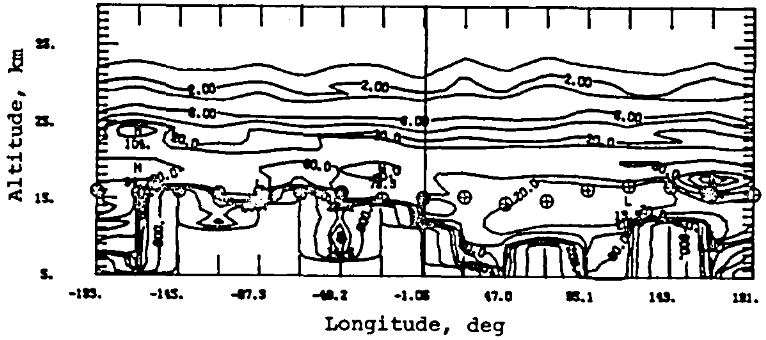


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

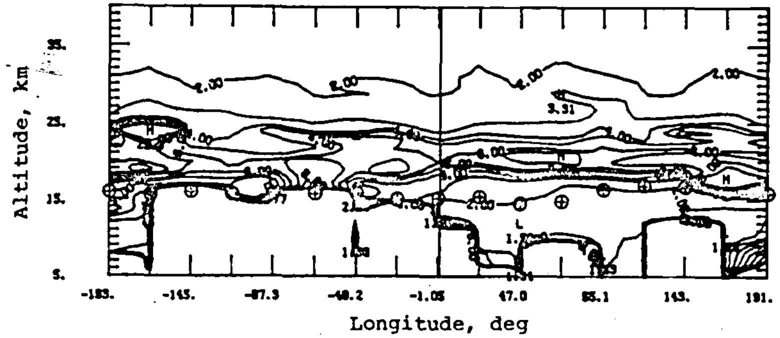


(e) Temperature (kelvin).

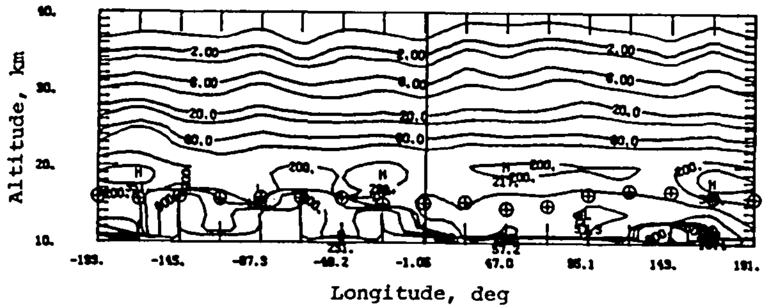
Figure 186. Extinction and temperature isopleths for sweep 18, sunset events, October 14.19–October 15.26, 1980, at 36.2°N to 31.7°N.



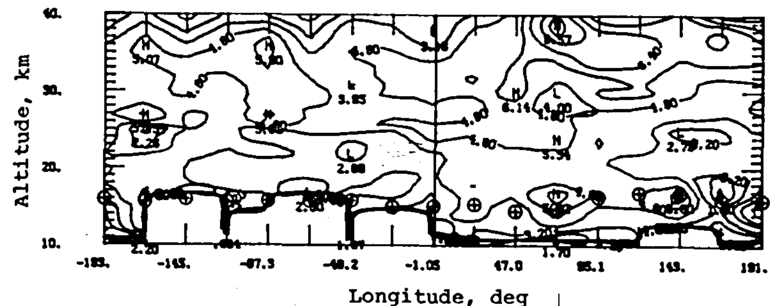
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



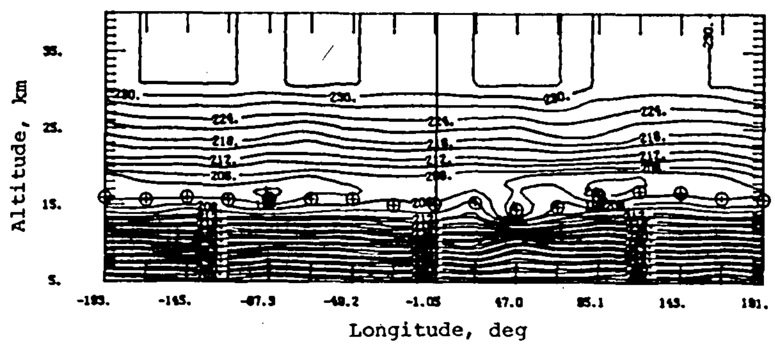
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

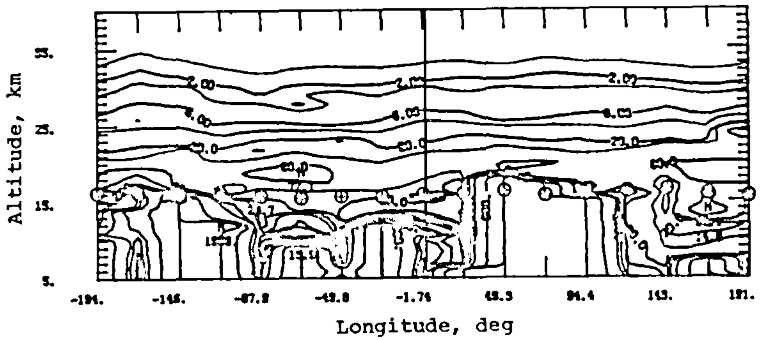


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

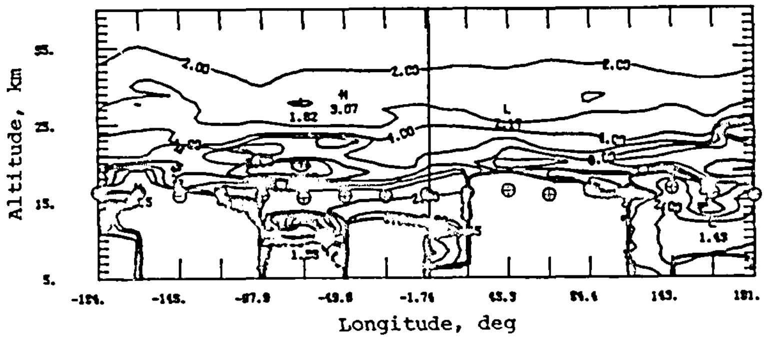


(e) Temperature (kelvin).

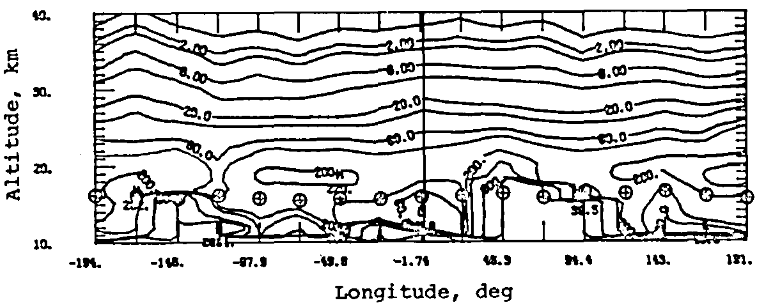
Figure 187. Extinction and temperature isopleths for sweep 18, sunset events, October 16.20–October 17.27, 1980, at 27.1°N to 21.0°N.



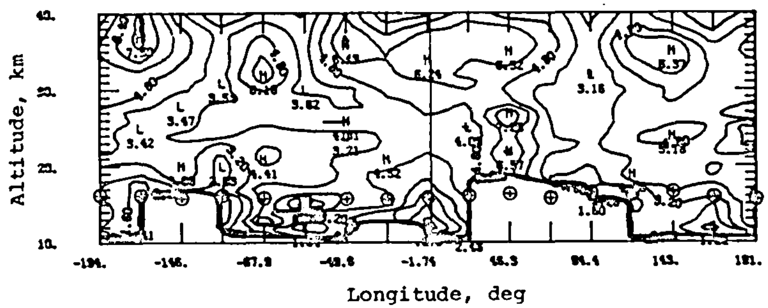
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



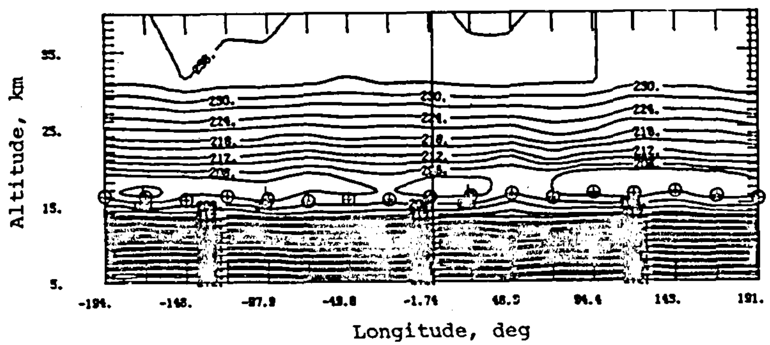
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

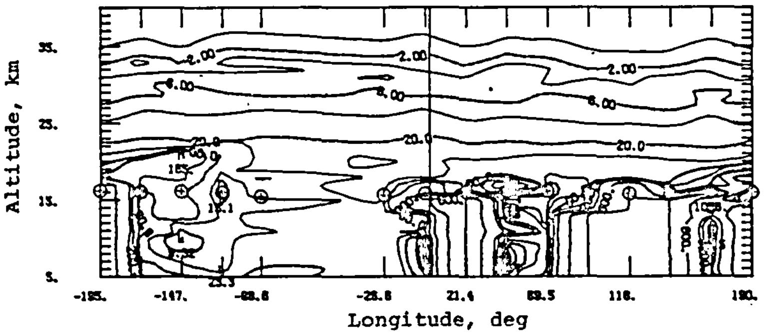


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

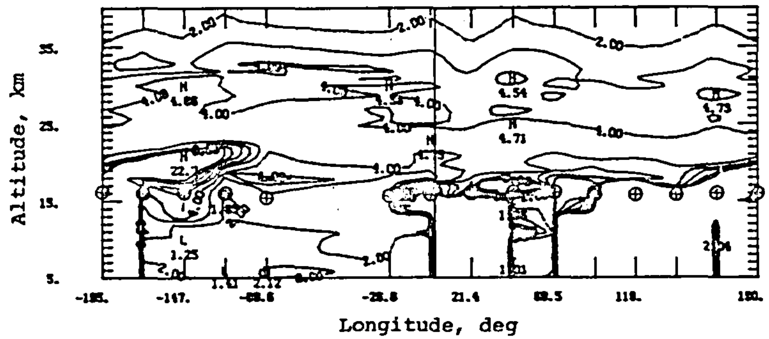


(e) Temperature (kelvin).

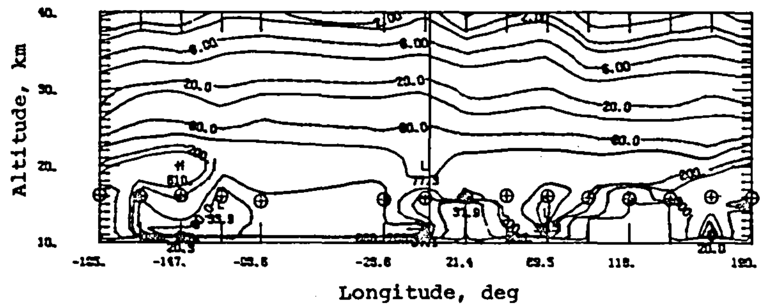
Figure 188. Extinction and temperature isopleths for sweep 18, sunset events, October 17.20–October 18.27, 1980, at 21.4°N to 14.0°N.



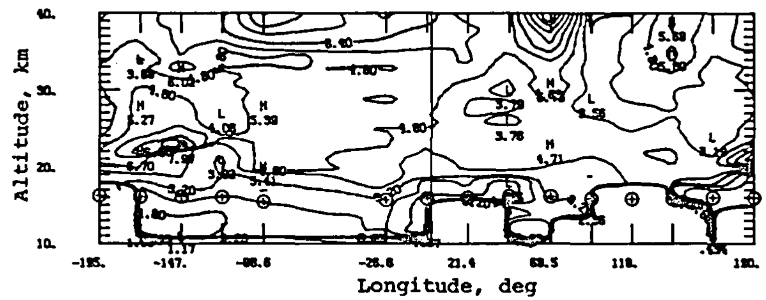
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



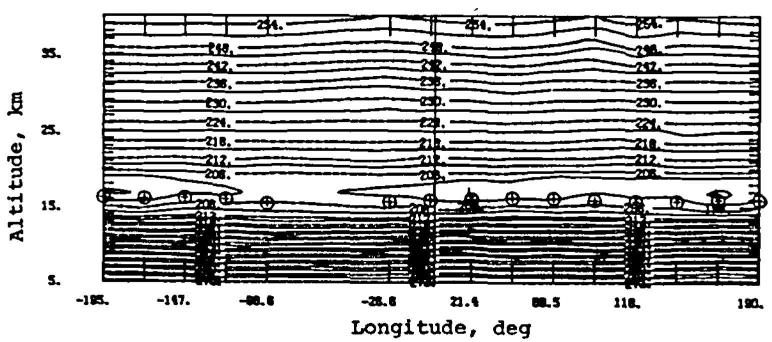
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

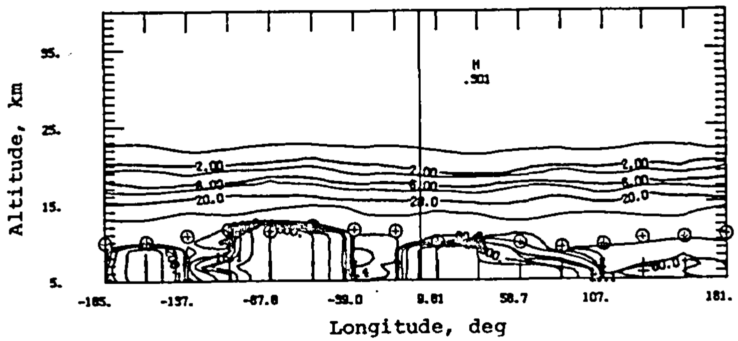


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

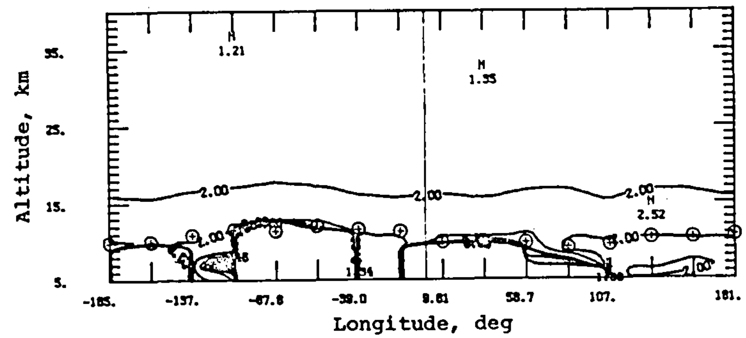


(e) Temperature (kelvin).

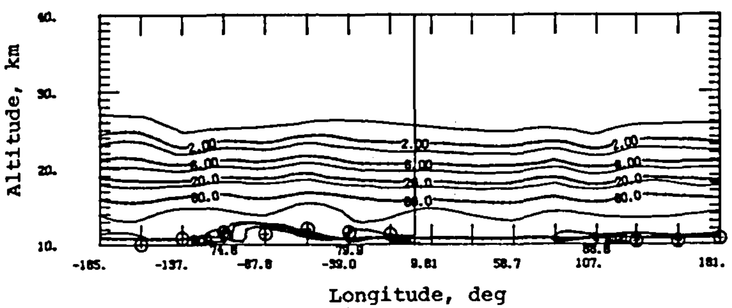
Figure 189. Extinction and temperature isopleths for sweep 18, sunset events, October 19.21–October 20.28, 1980, at 6.2°N to 4.7°S.



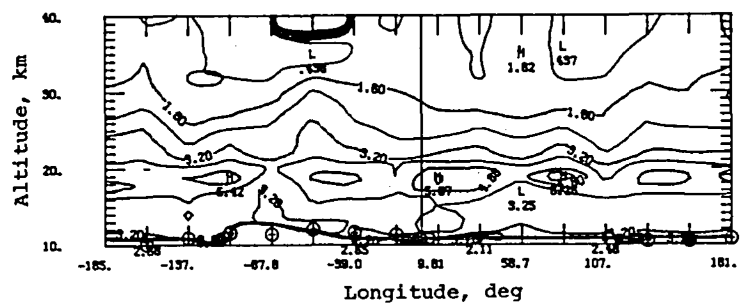
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



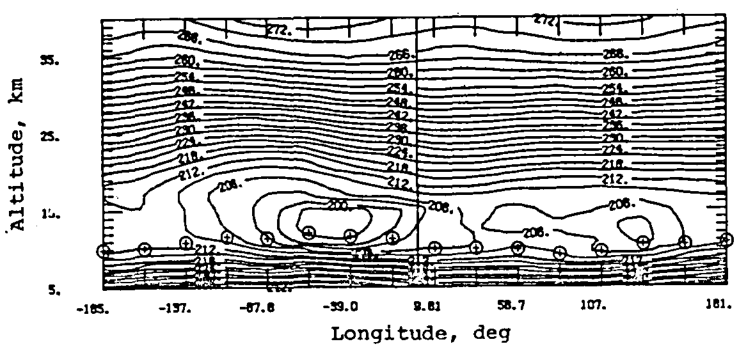
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

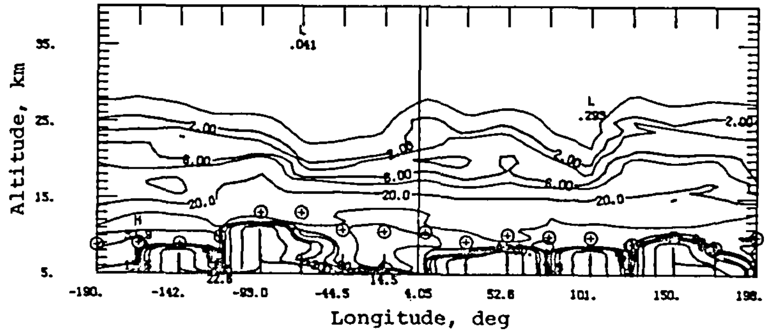


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

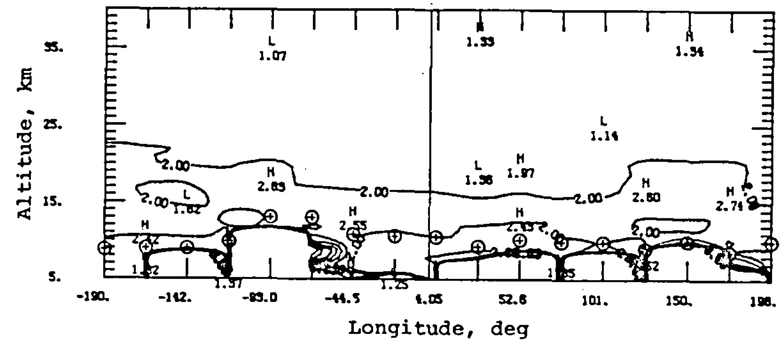


(e) Temperature (kelvin).

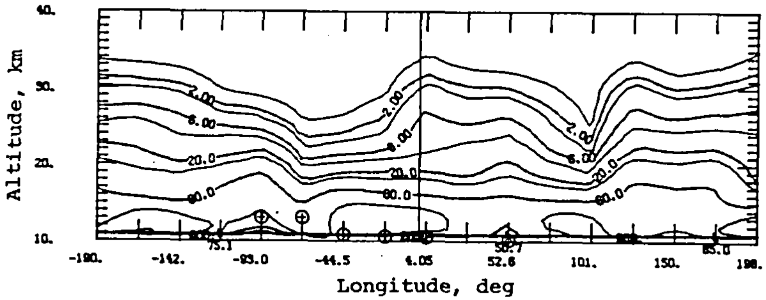
Figure 190. Extinction and temperature isopleths for sweep 19, sunset events, November 1.41–November 2.41, 1980, at 73.4°S to 72.2°S.



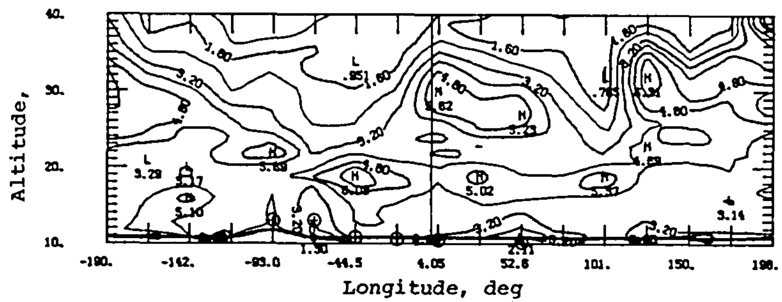
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



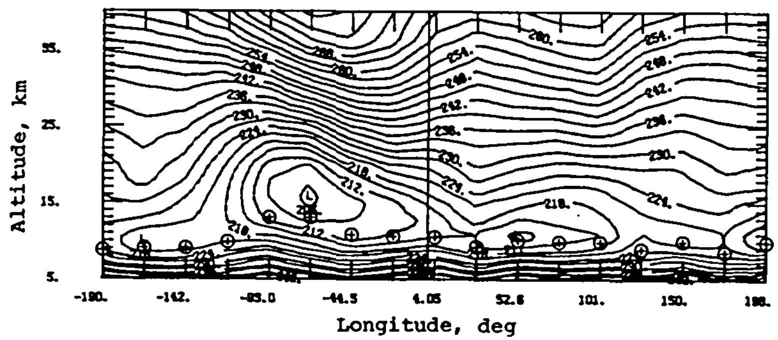
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

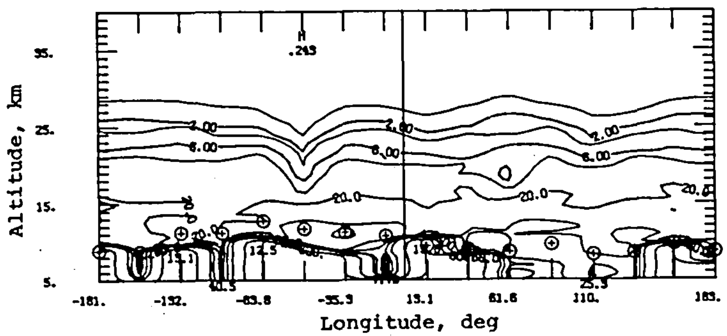


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

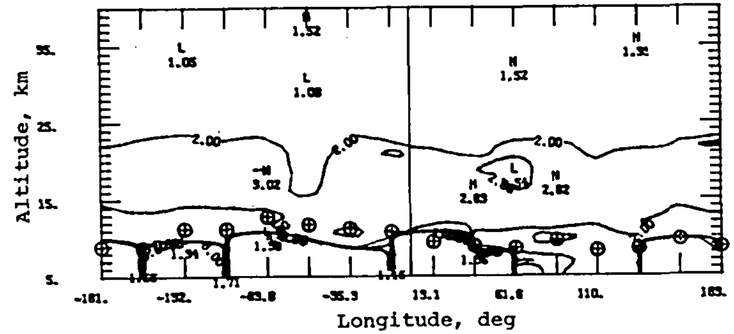


(e) Temperature (kelvin).

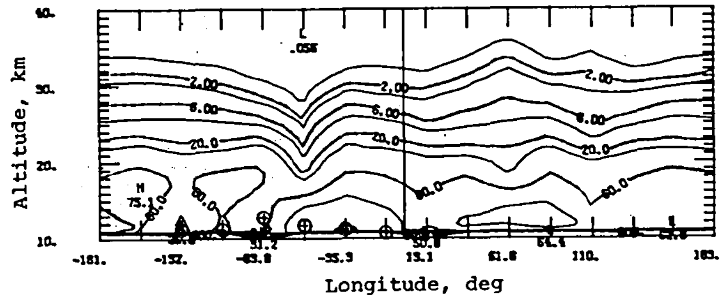
Figure 191. Extinction and temperature isopleths for sweep 19, sunset events, November 7.30–November 8.37, 1980, at 64.5°S to 62.4°S.



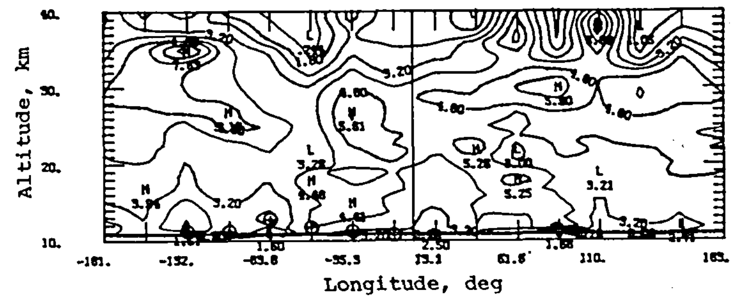
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}



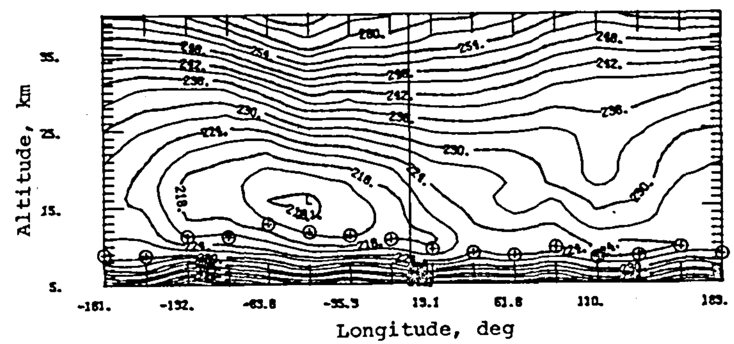
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

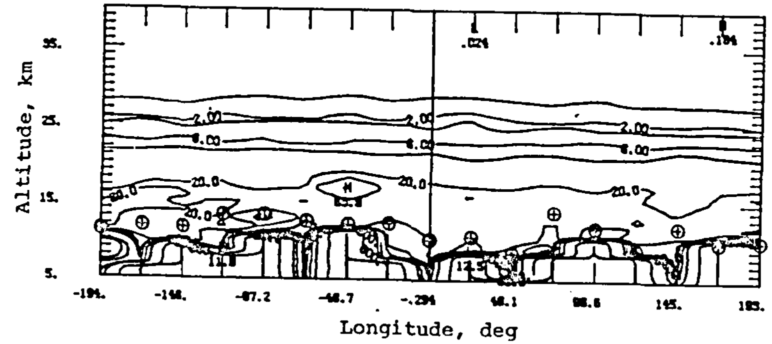


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

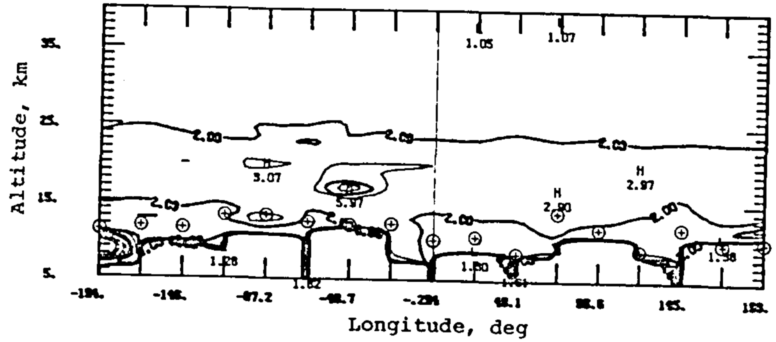


(e) Temperature (kelvin).

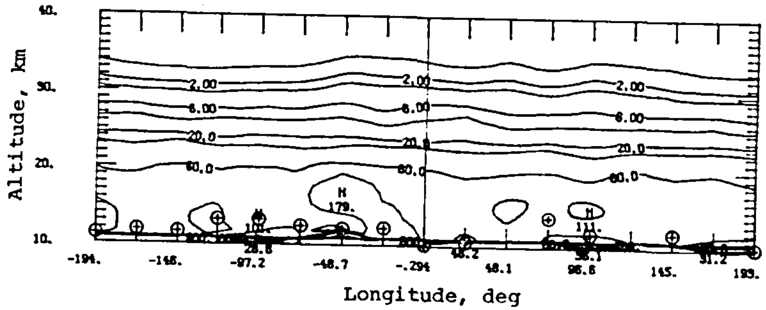
Figure 192. Extinction and temperature isopleths for sweep 19, sunset events, November 11.31–November 12.31, 1980, at 55.7°S to 53.2°S.



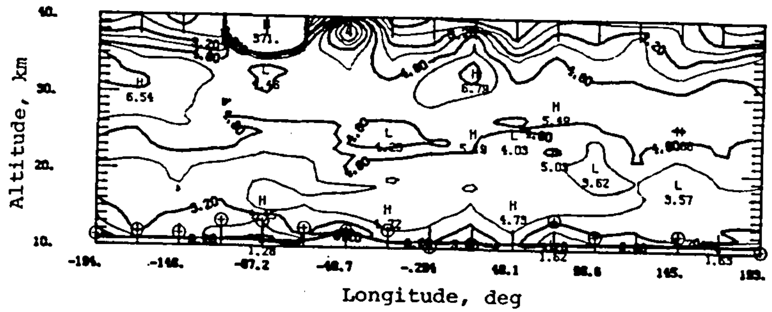
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



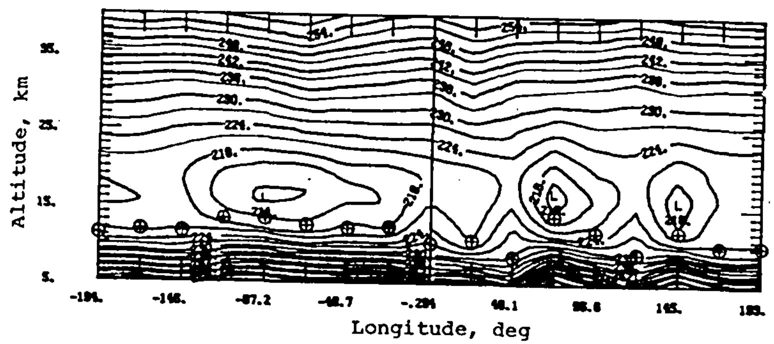
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

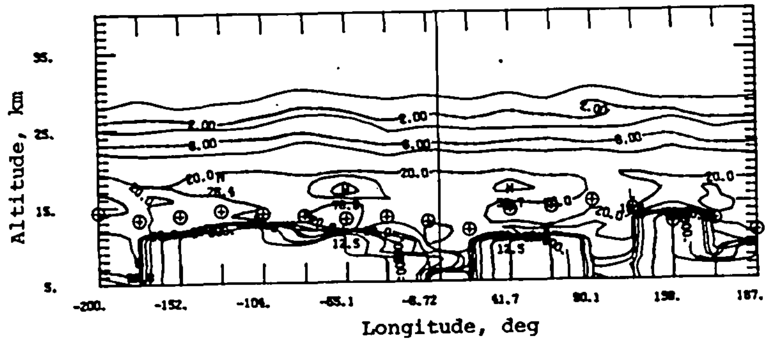


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

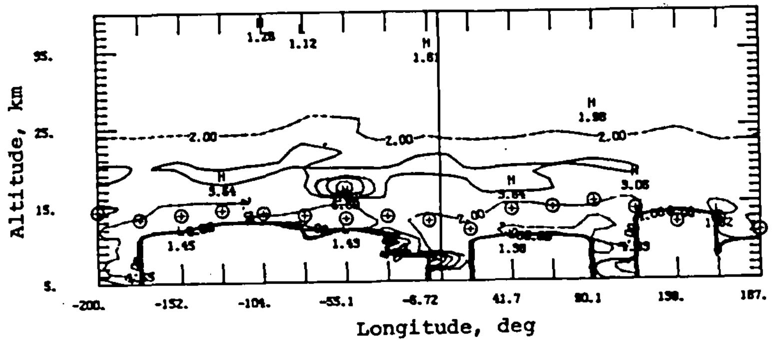


(e) Temperature (kelvin).

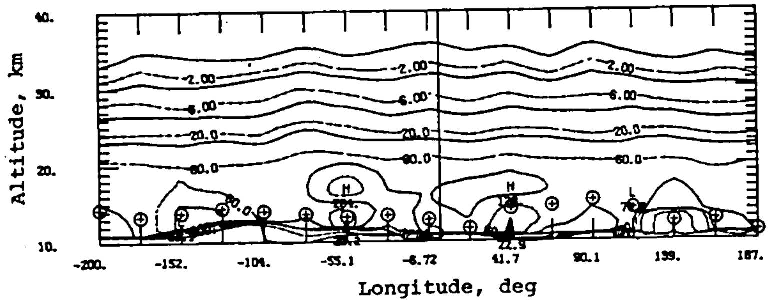
Figure 193. Extinction and temperature isopleths for sweep 19, sunset events, November 15.26–November 16.33, 1980, at 44.4°S to 40.8°S.



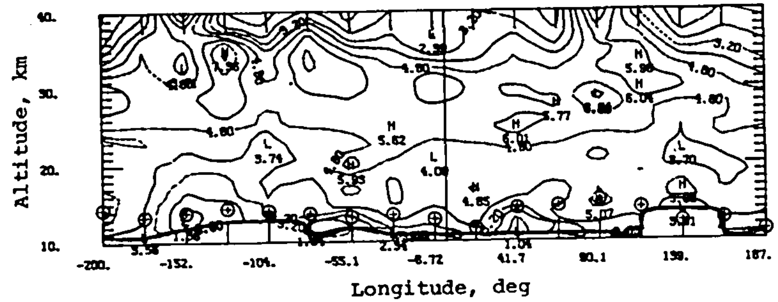
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



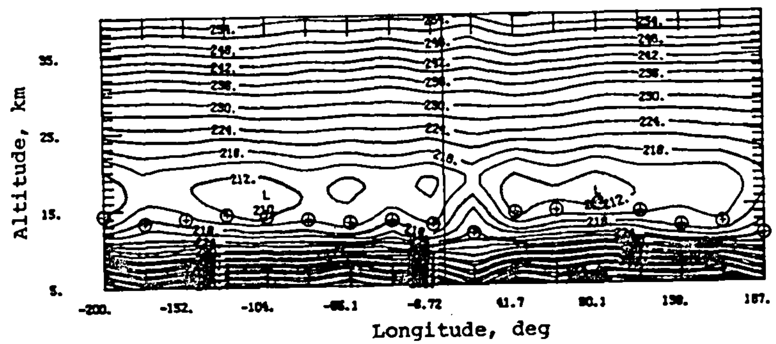
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

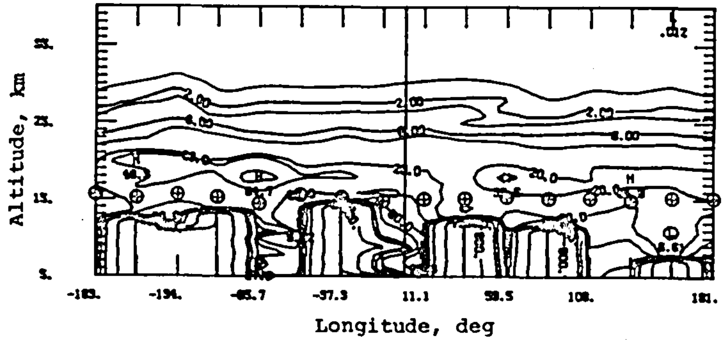


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

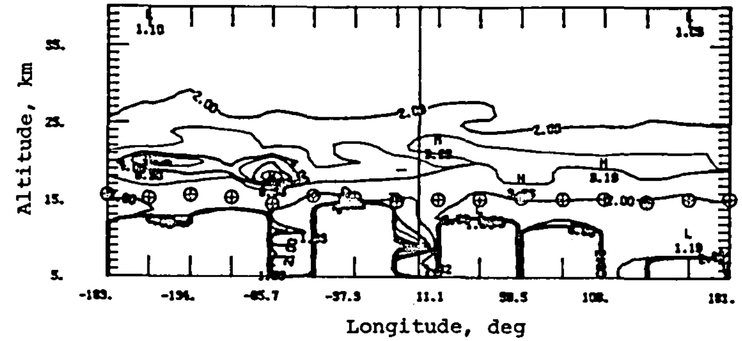


(e) Temperature (kelvin).

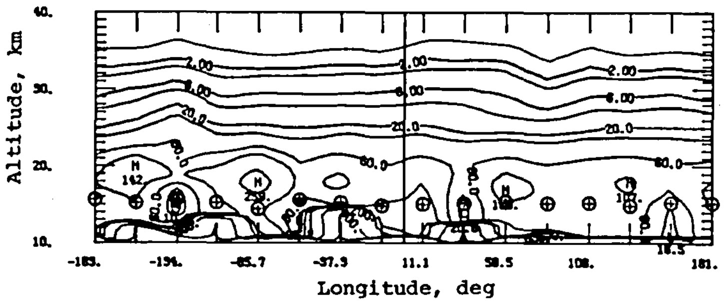
Figure 194. Extinction and temperature isopleths for sweep 19, sunset events, November 17.26–November 18.33, 1980, at 37.4°S to 33.3°S.



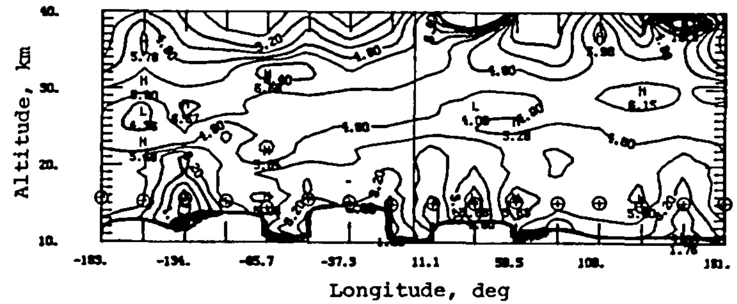
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



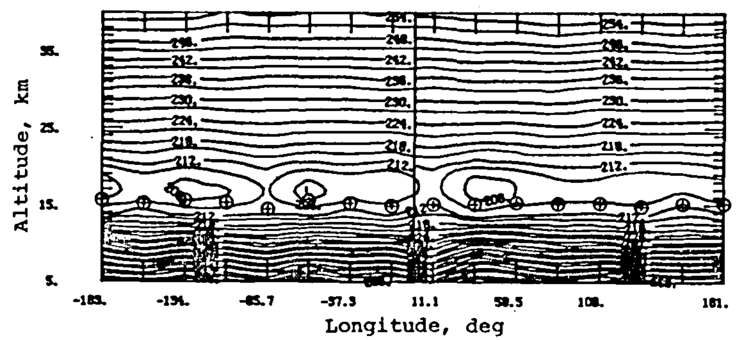
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

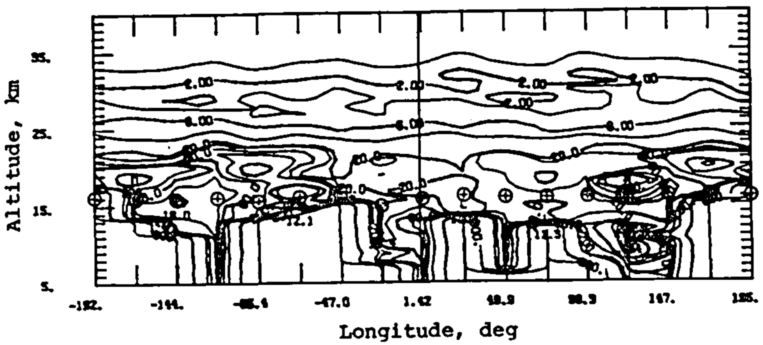


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

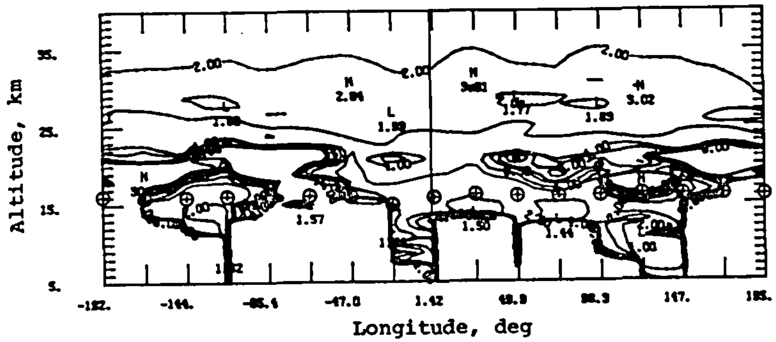


(e) Temperature (kelvin).

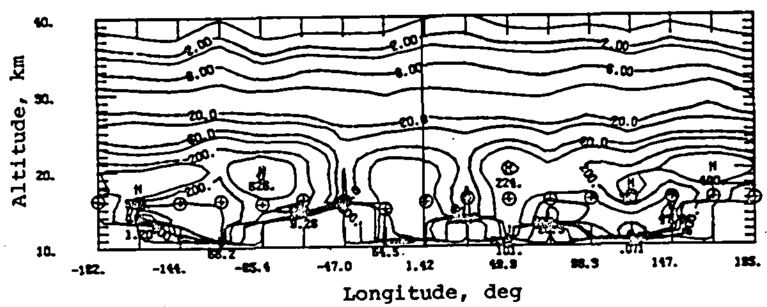
Figure 195. Extinction and temperature isopleths for sweep 19, sunset events, November 19.27–November 20.28, 1980, at 29.4°S to 25.0°S.



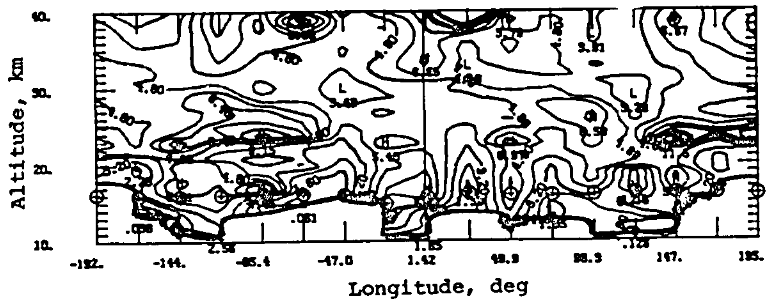
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



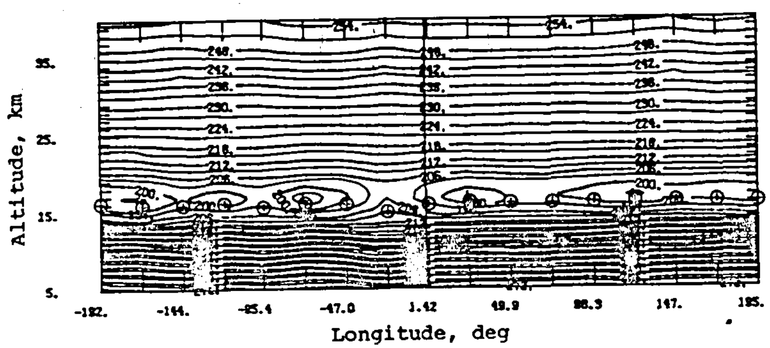
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

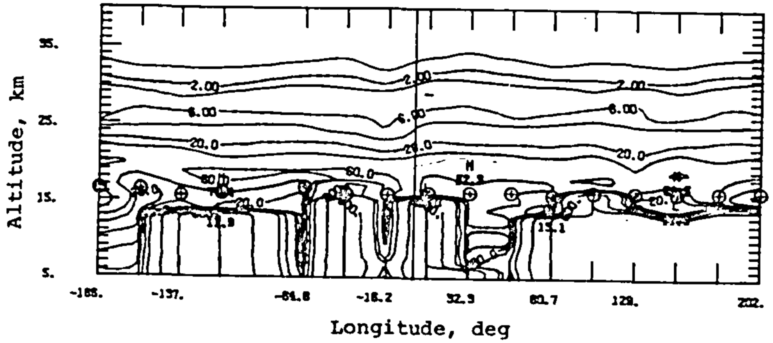


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

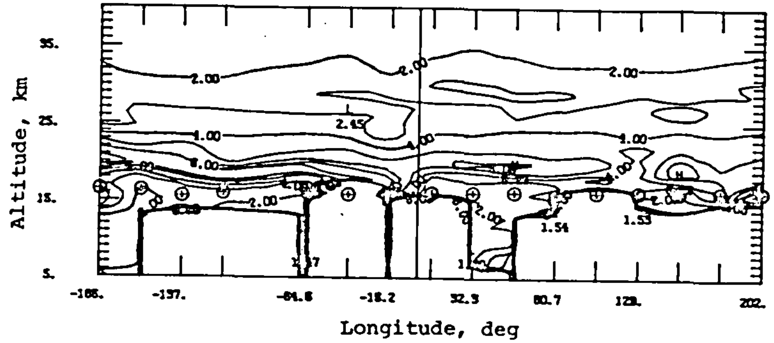


(e) Temperature (kelvin).

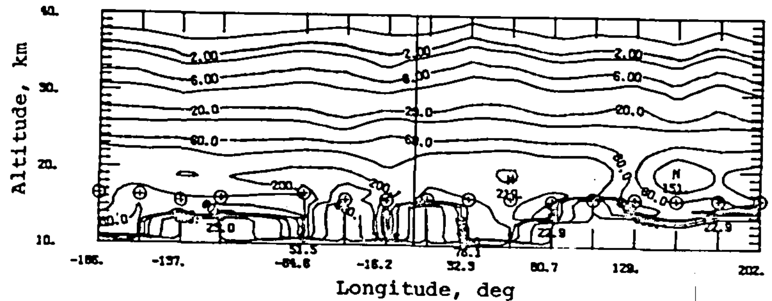
Figure 196. Extinction and temperature isopleths for sweep 19, sunset events, November 22.22–November 23.29, 1980, at 15.8°S to 10.4°S.



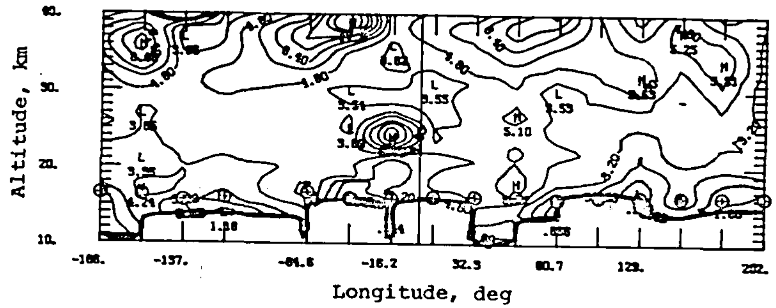
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



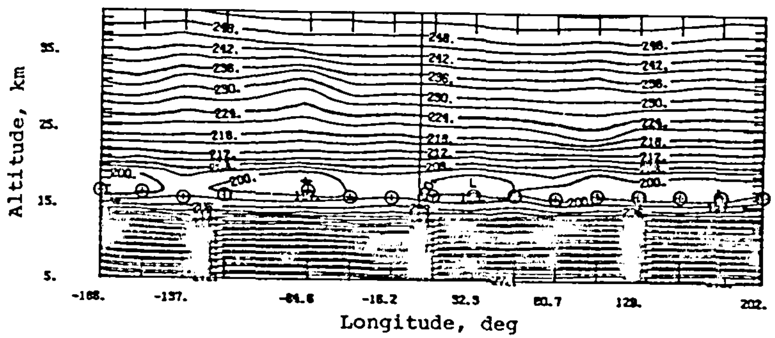
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

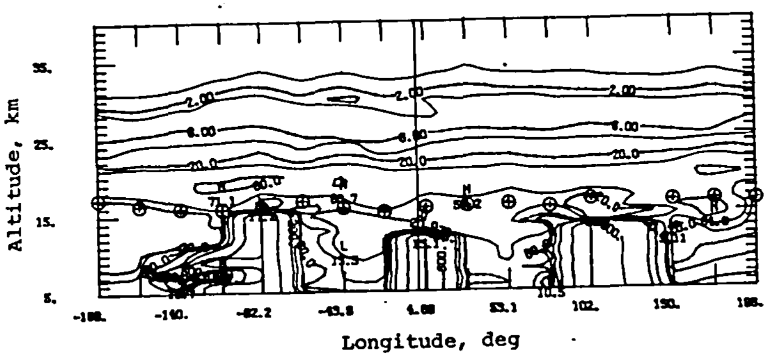


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

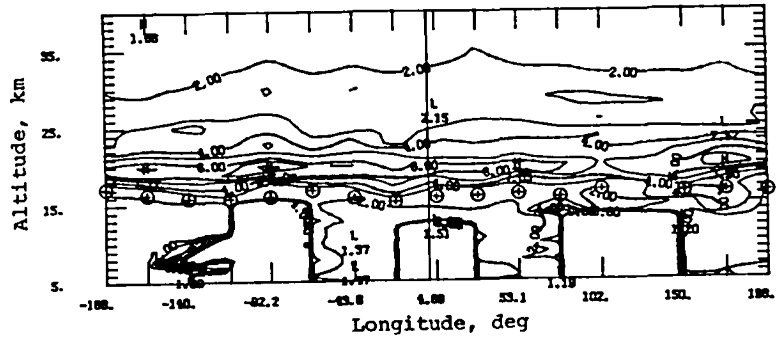


(e) Temperature (kelvin).

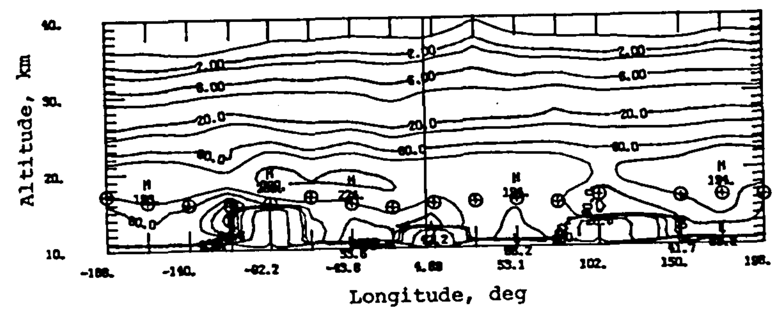
Figure 197. Extinction and temperature isopleths for sweep 19, sunset events, November 27.17–November 28.24, 1980, at 9.5°N to 14.7°N.



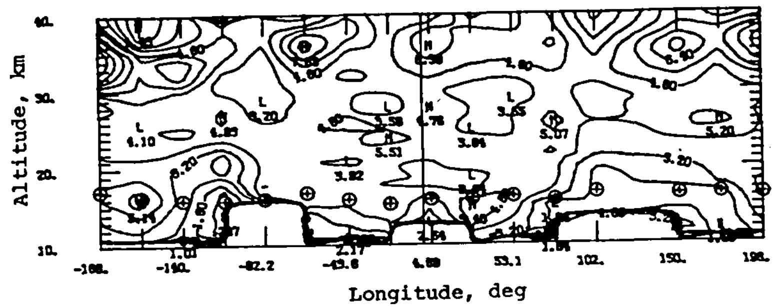
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



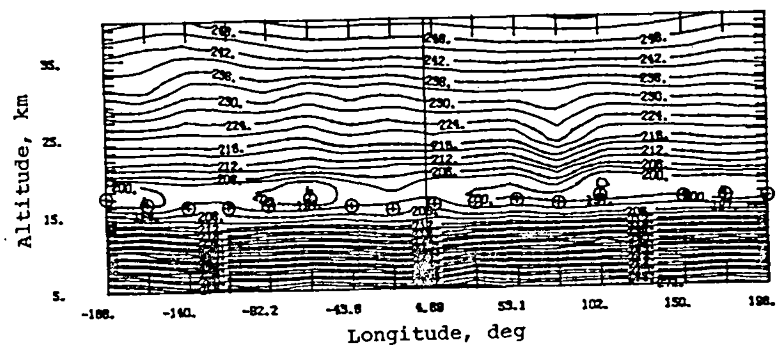
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

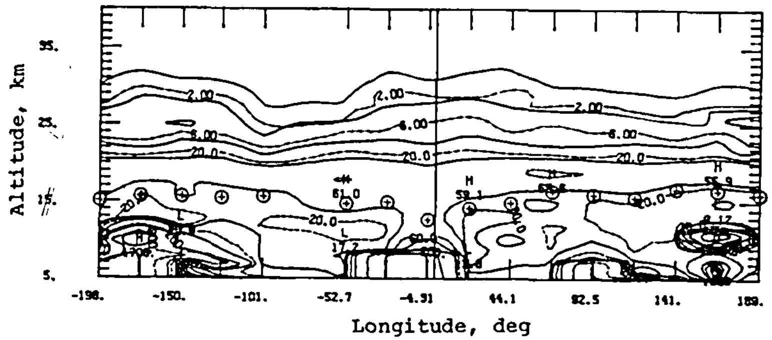


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

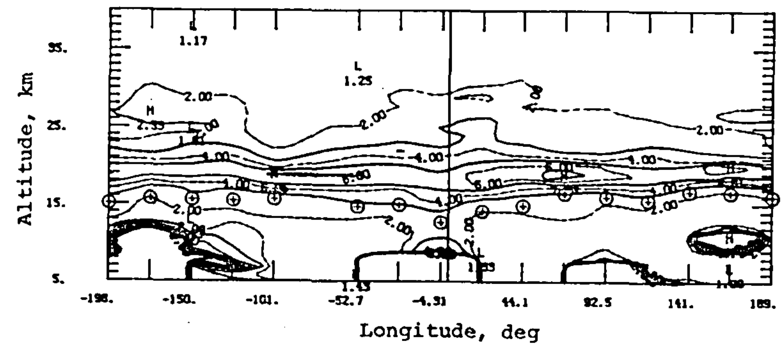


(e) Temperature (kelvin).

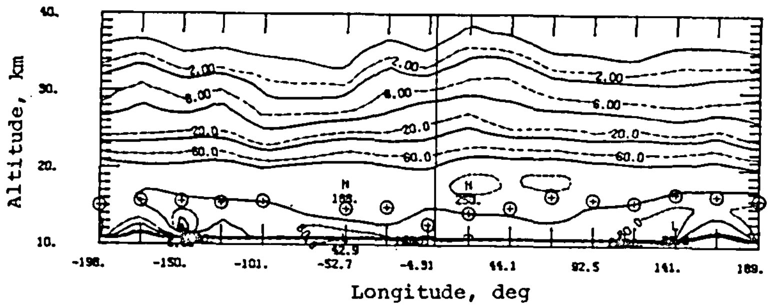
Figure 198. Extinction and temperature isopleths for sweep 19, sunset events, November 28.17–November 29.24, 1980, at 14.4°N to 19.6°N.



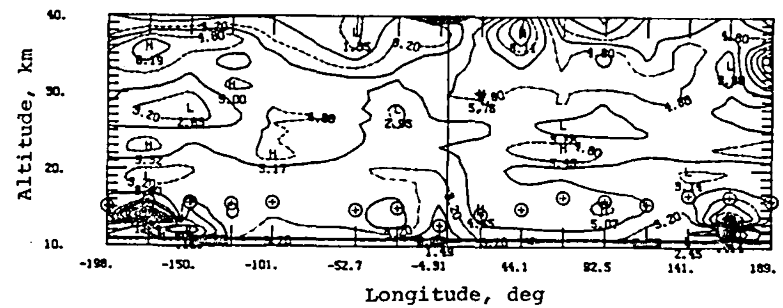
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



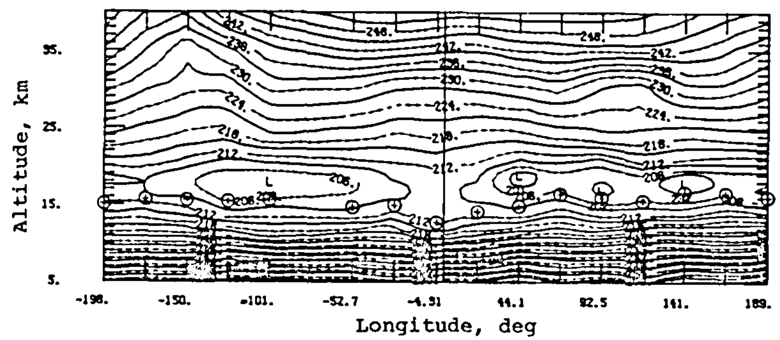
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

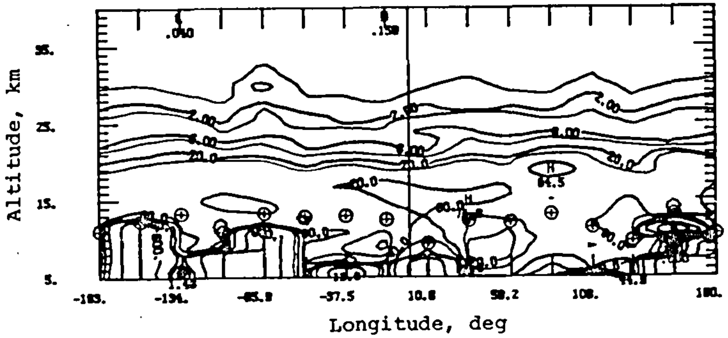


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

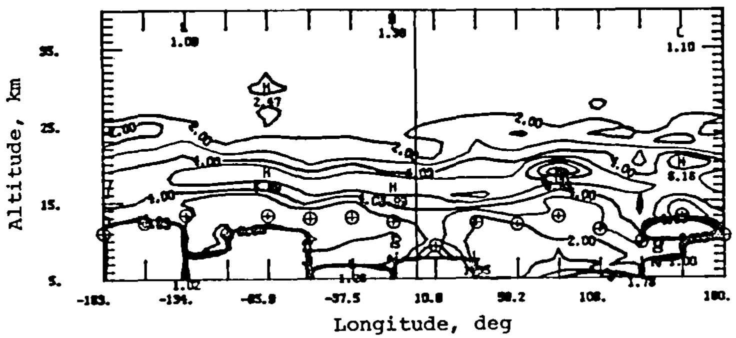


(e) Temperature (kelvin).

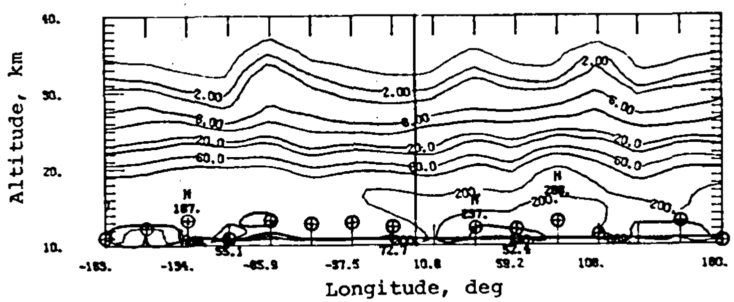
Figure 199. Extinction and temperature isopleths for sweep 19, sunset events, December 1.18–December 2.26, 1980, at 27.4°N to 31.1°N.



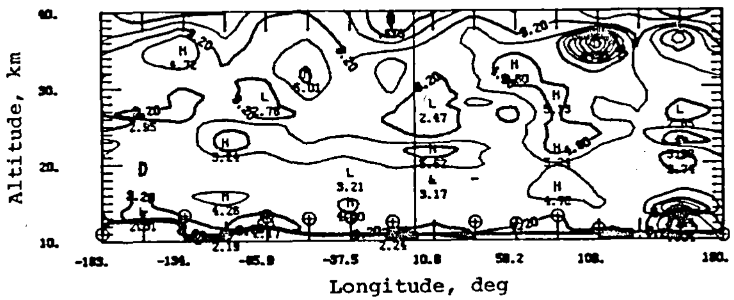
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



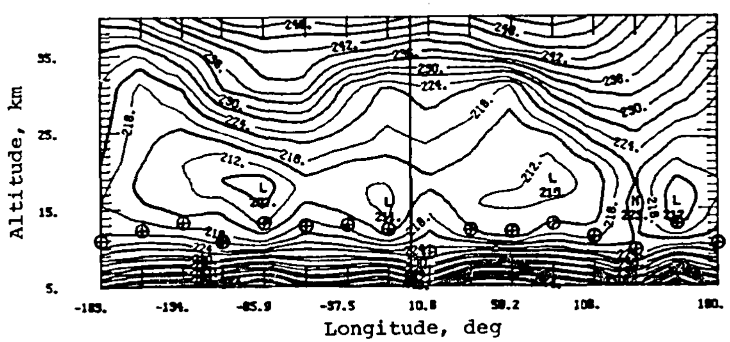
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

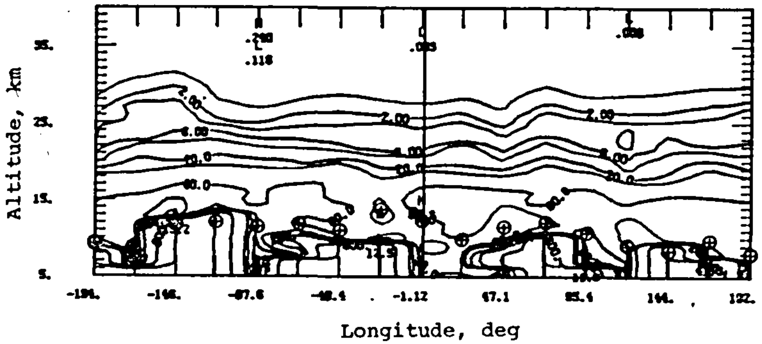


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

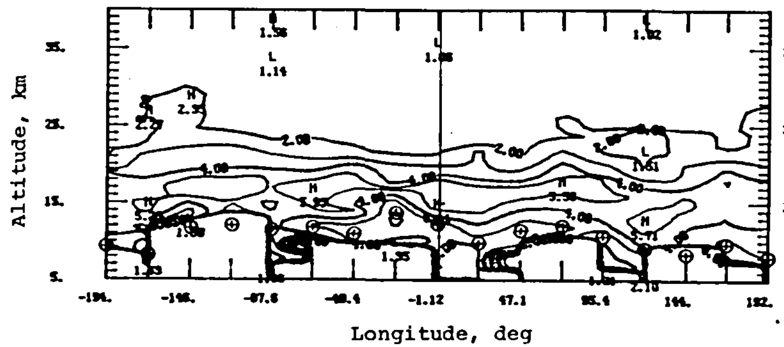


(e) Temperature (kelvin).

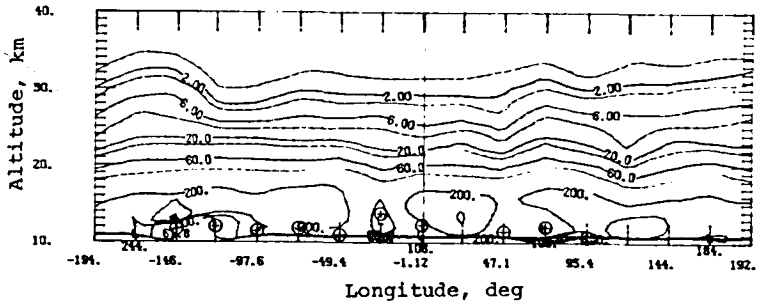
Figure 200. Extinction and temperature isopleths for sweep 19, sunset events, December 4.20–December 5.20, 1980, at 36.5°N to 38.8°N.



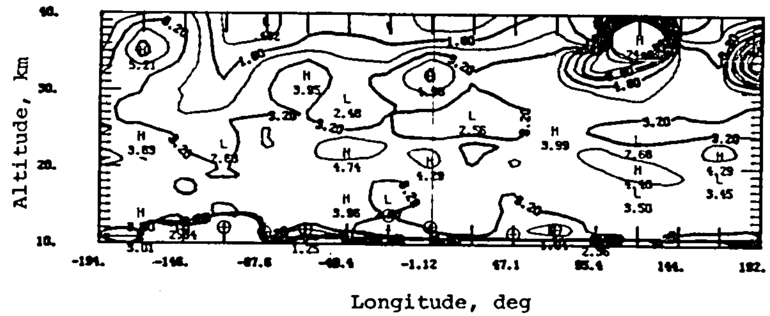
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



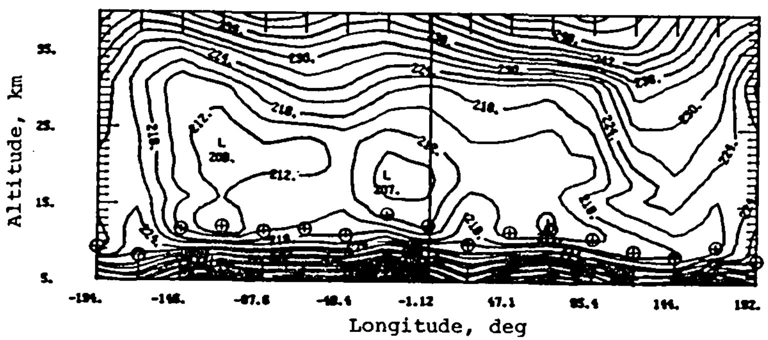
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

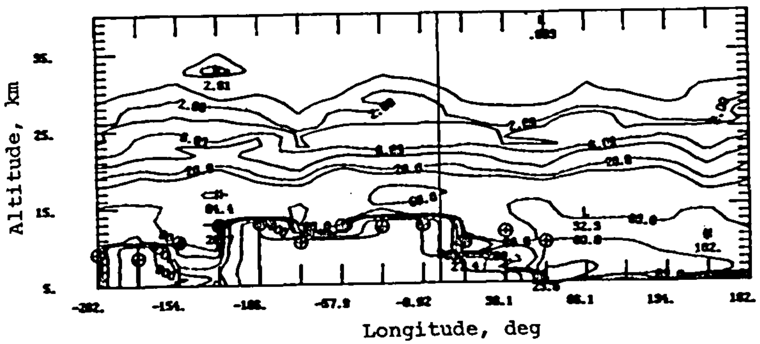


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

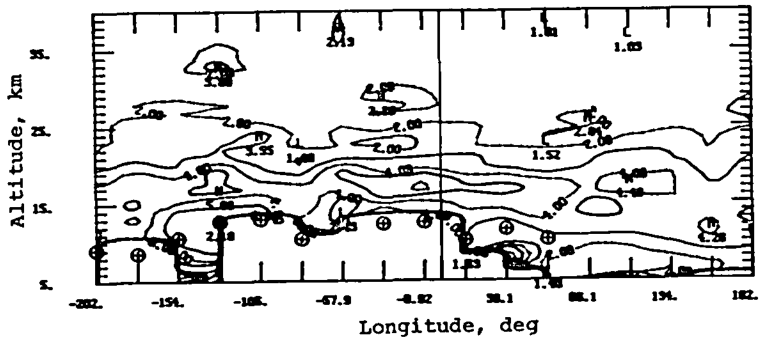


(e) Temperature (kelvin).

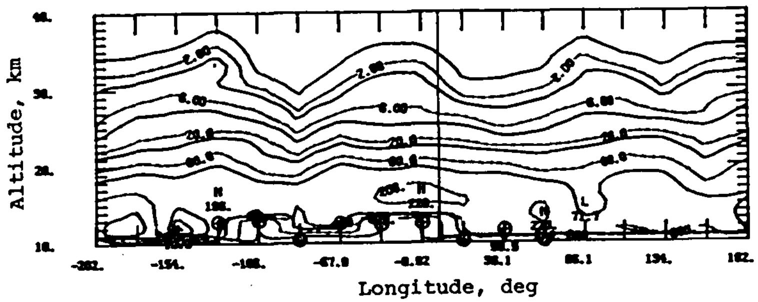
Figure 201. Extinction and temperature isopleths for sweep 19, sunset events, December 9.15–December 10.22, 1980, at 44.5°N to 45.4°N.



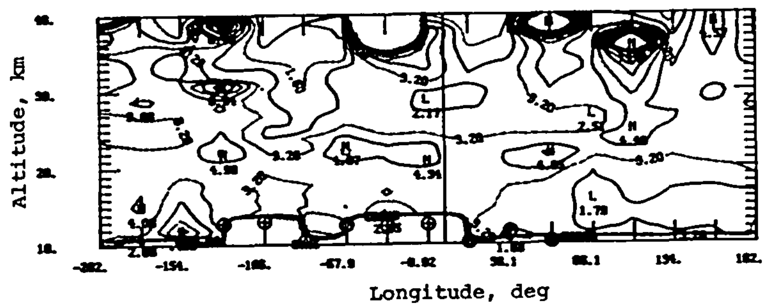
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



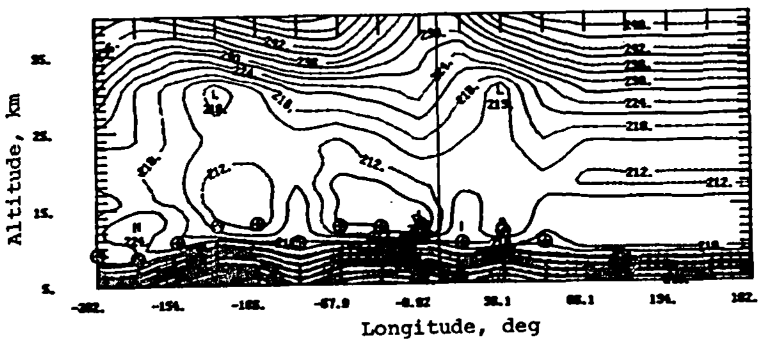
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

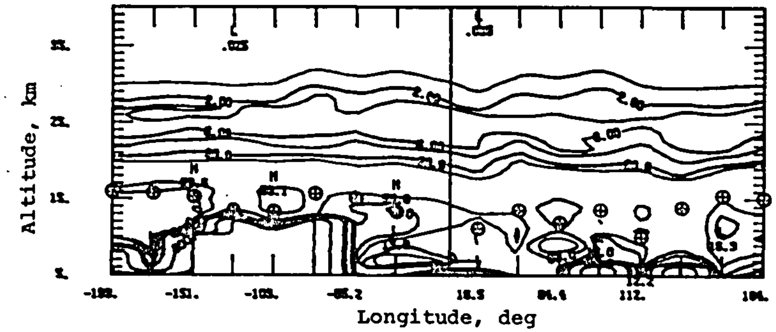


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

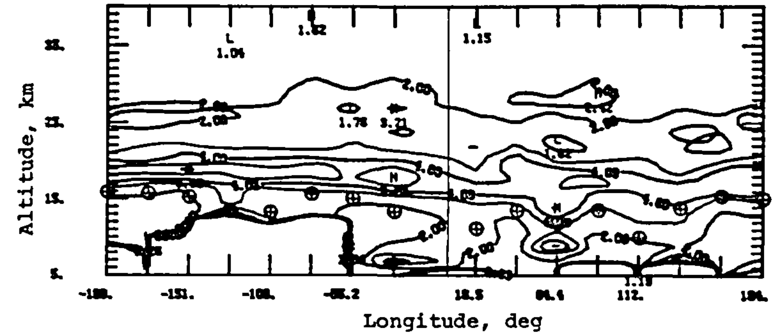


(e) Temperature (kelvin).

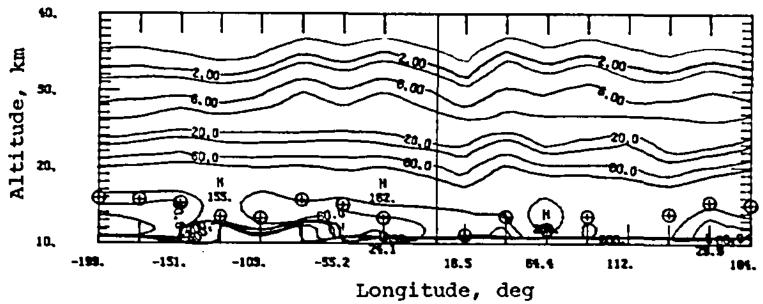
Figure 202. Extinction and temperature isopleths for sweep 20, sunset events, December 17.17–December 18.24, 1980, at 45.2°N to 44.2°N.



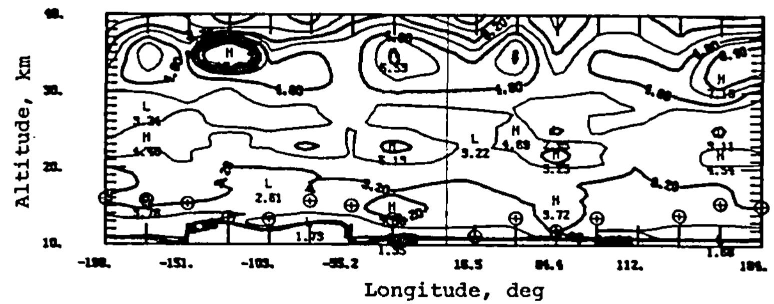
(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.



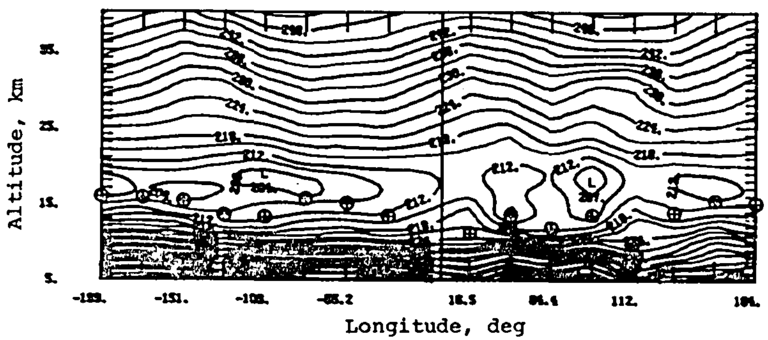
(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.



(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

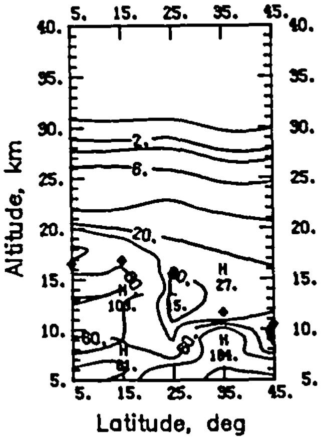


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

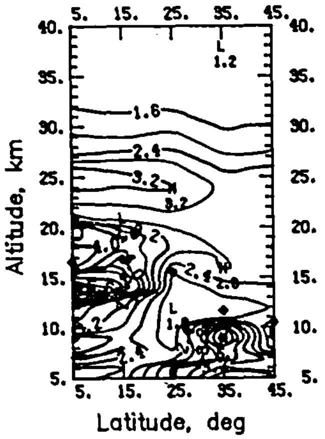


(e) Temperature (kelvin).

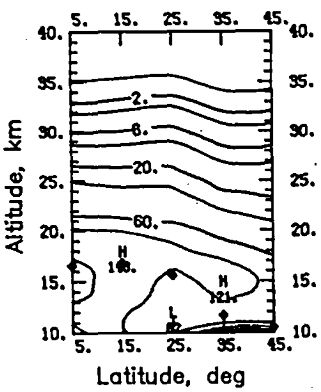
Figure 203. Extinction and temperature isopleths for sweep 20, sunset events, December 22.19–December 23.26, 1980, at 36.1°N to 32.0°N.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

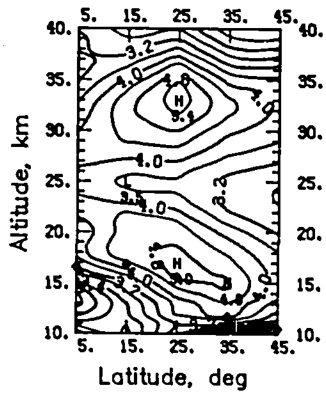


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

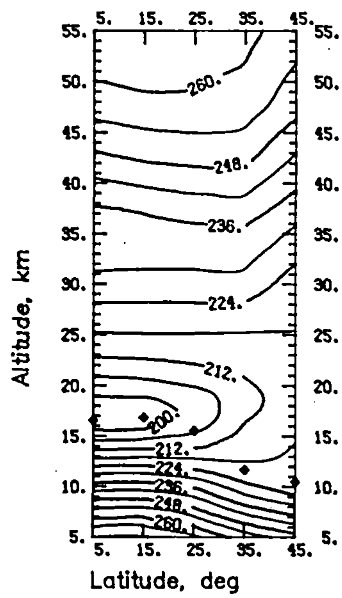


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 204. Zonally averaged extinction and temperature data for sweep 10, sunset events, January 1–January 28, 1980.

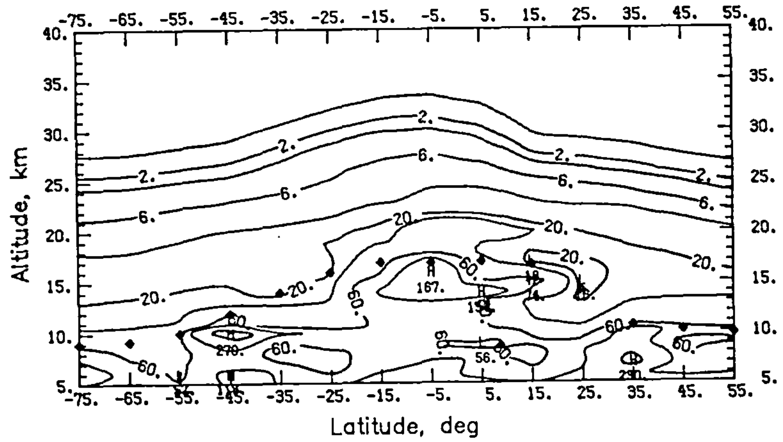


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

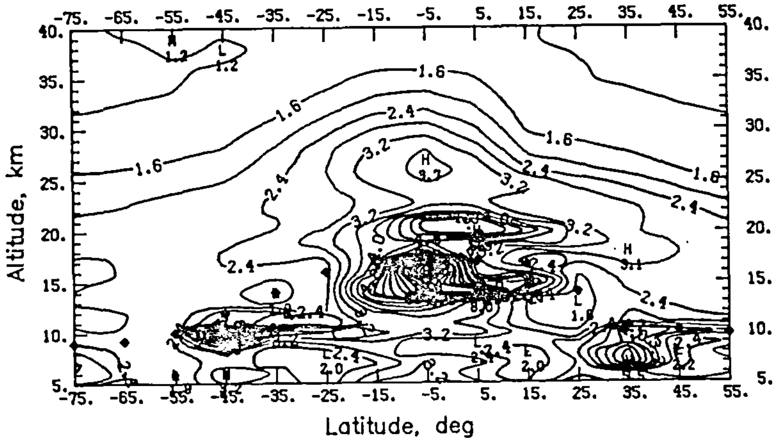


(e) Temperature (kelvin).

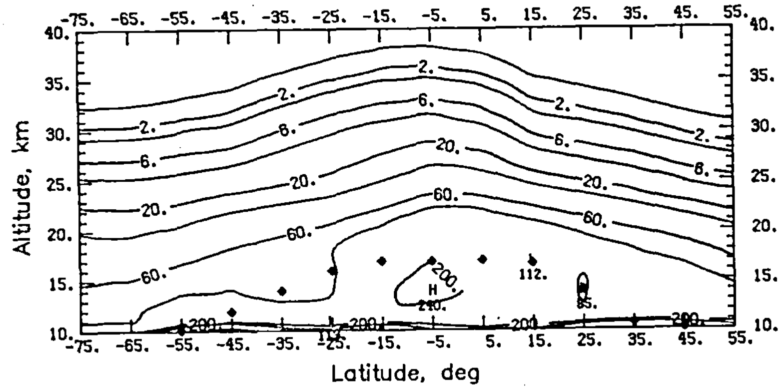
Figure 204. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

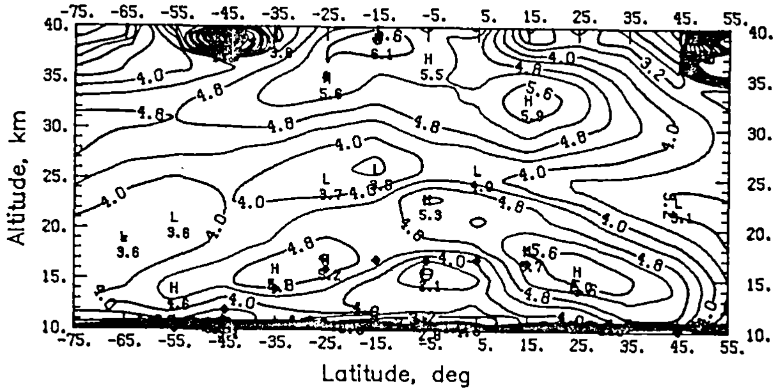


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

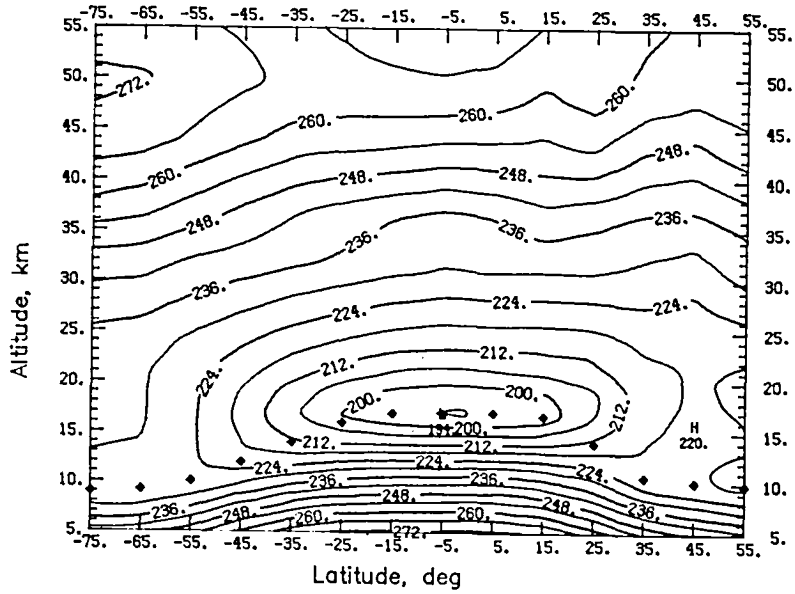


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 205. Zonally averaged extinction and temperature data for sweep 11, sunset events, January 28–March 6, 1980.

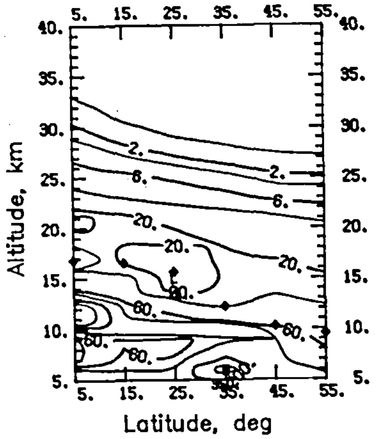


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

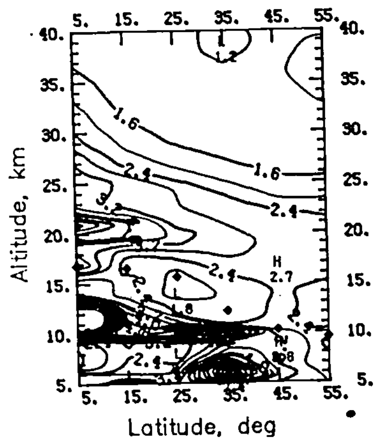


(e) Temperature (kelvin).

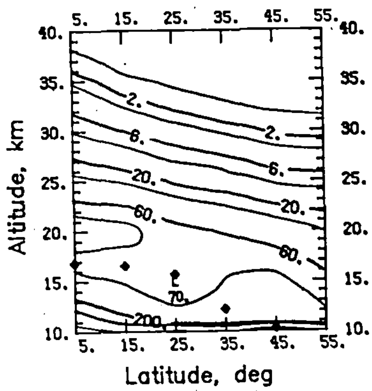
Figure 205. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

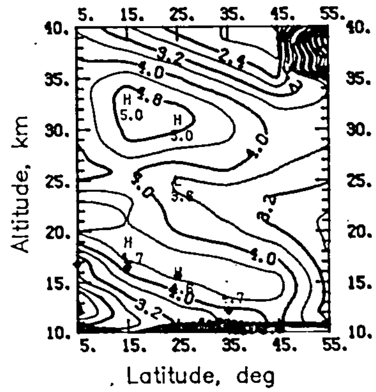


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

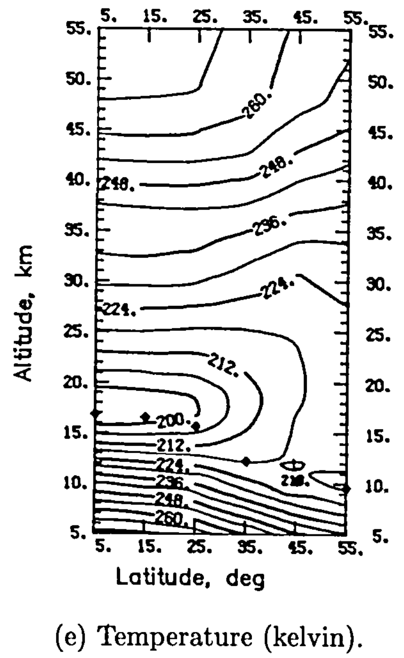


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 206. Zonally averaged extinction and temperature data for sweep 12, sunset events, March 6–April 8, 1980.

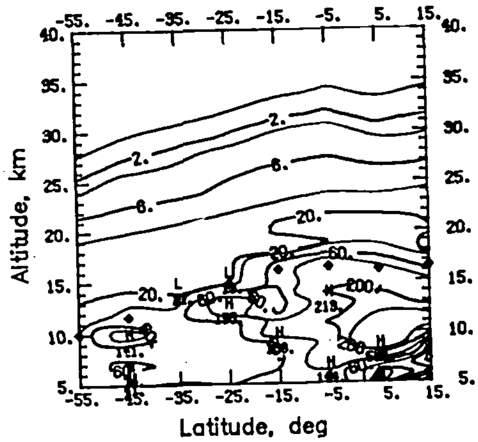


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

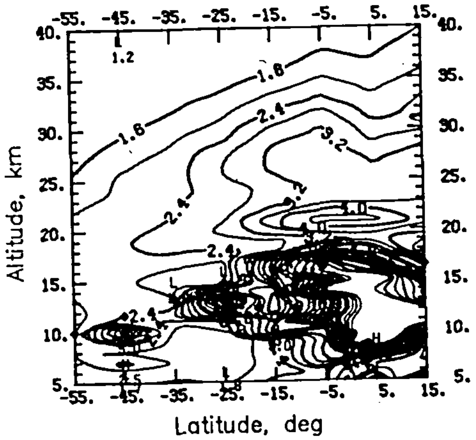


(e) Temperature (kelvin).

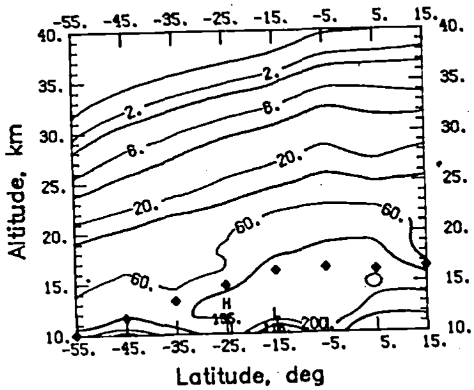
Figure 206. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

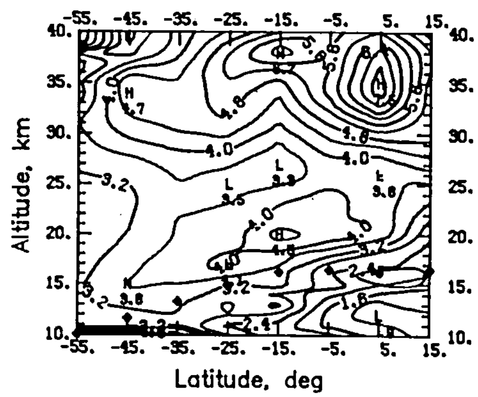


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

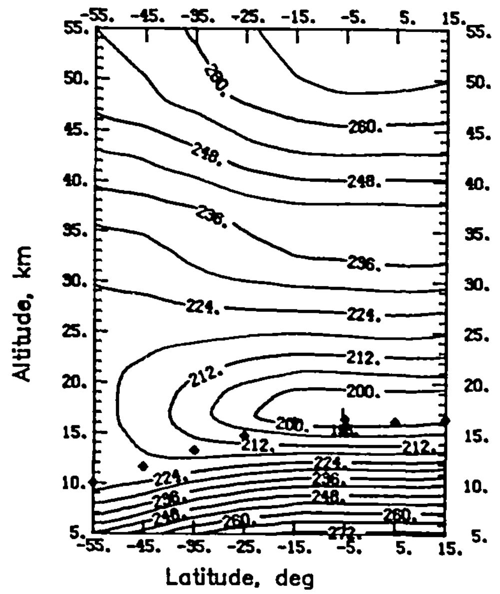


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 207. Zonally averaged extinction and temperature data for sweep 13, sunset events, April 9–May 12, 1980.

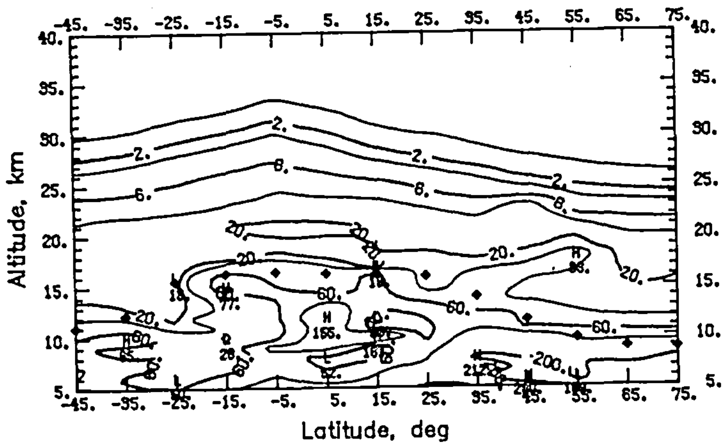


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

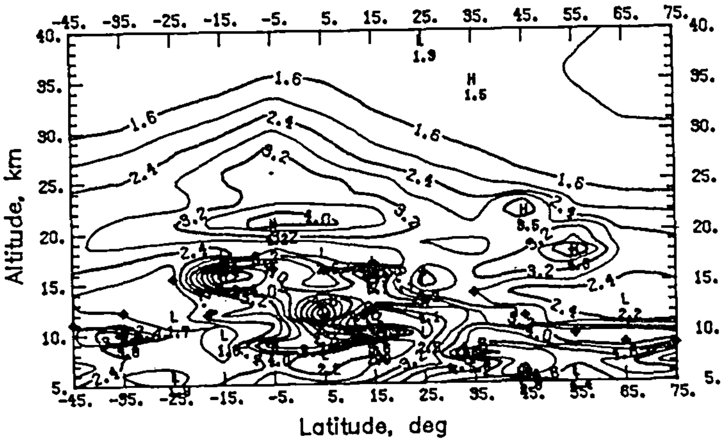


(e) Temperature (kelvin).

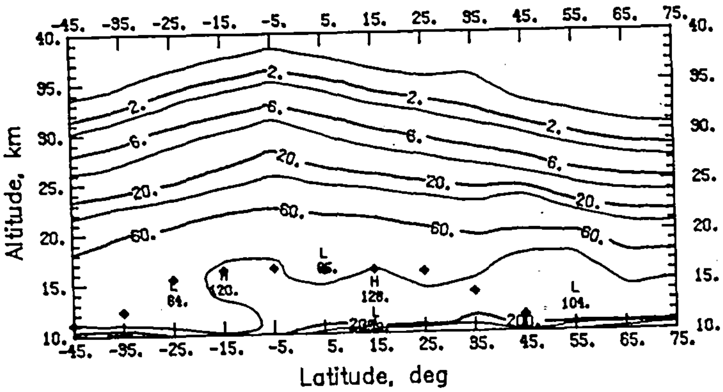
Figure 207. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

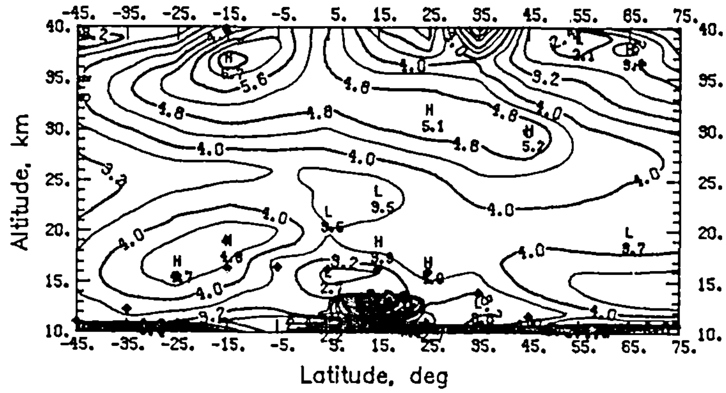


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

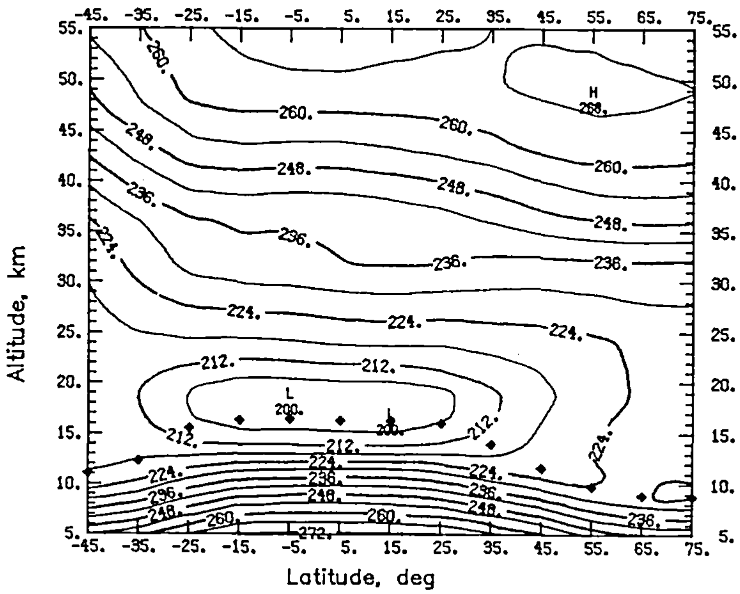


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 208. Zonally averaged extinction and temperature data for sweep 14, sunset events, May 12-June 24, 1980.

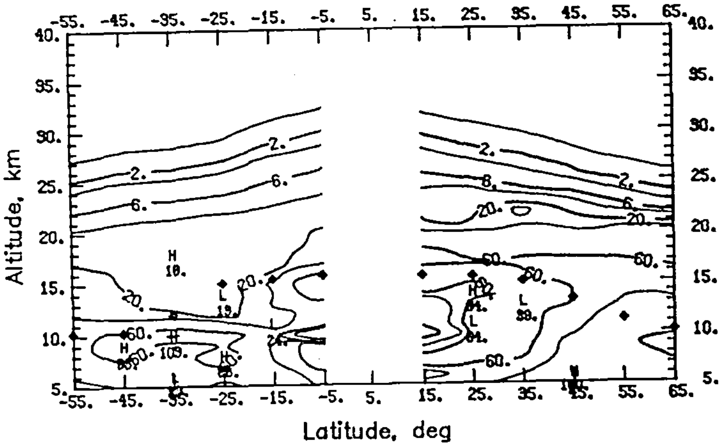


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

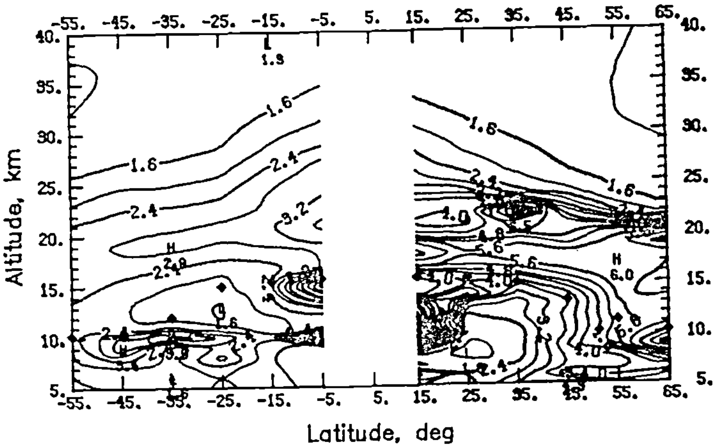


(e) Temperature (kelvin).

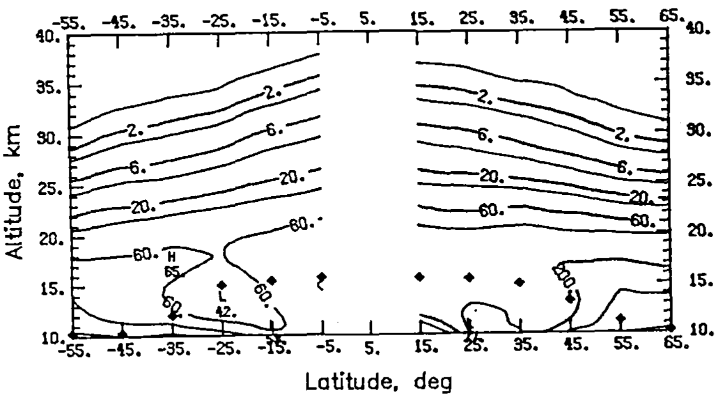
Figure 208. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

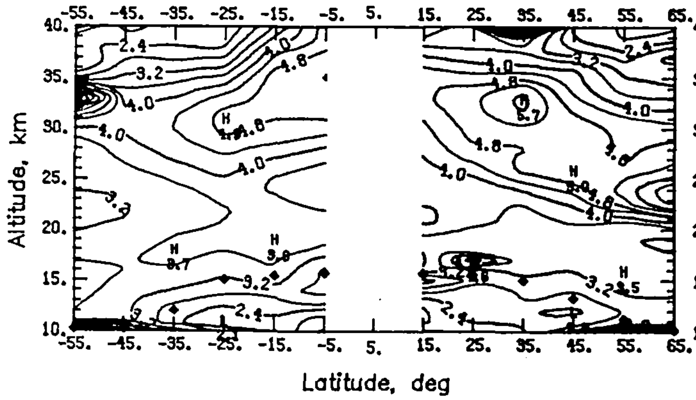


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

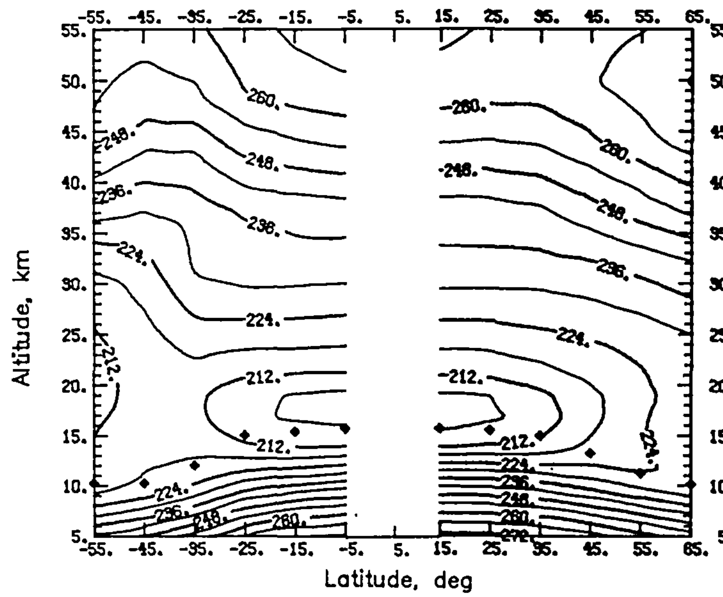


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 209. Zonally averaged extinction and temperature data for sweep 16, sunset events, July 20–August 28, 1980.

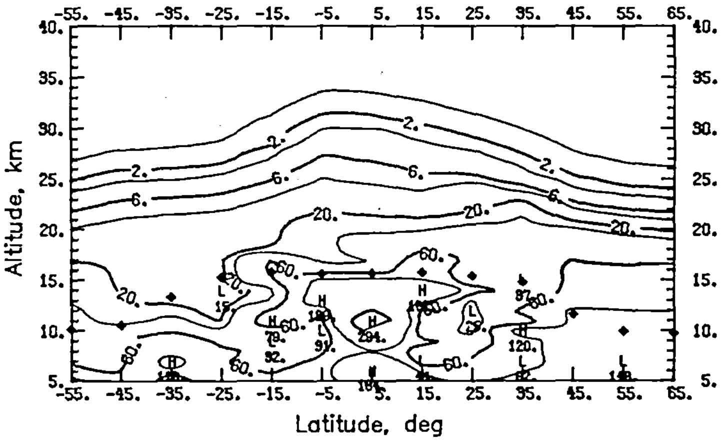


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

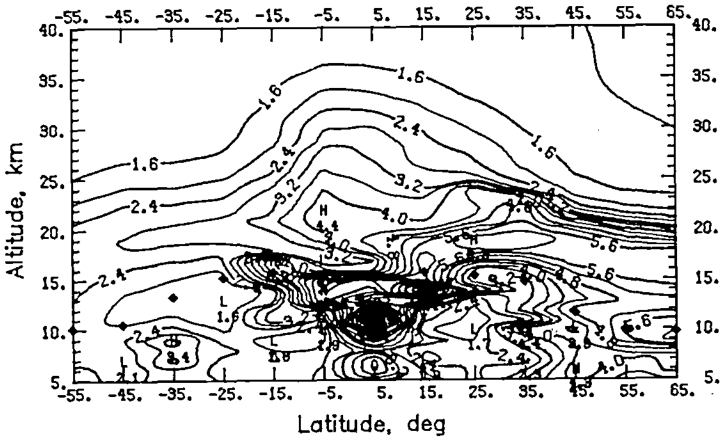


(e) Temperature (kelvin).

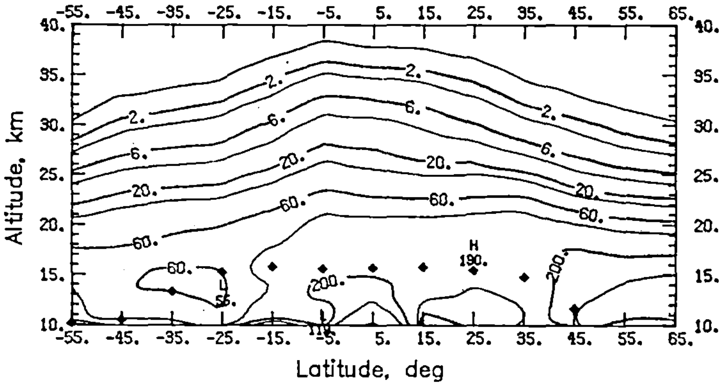
Figure 209. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

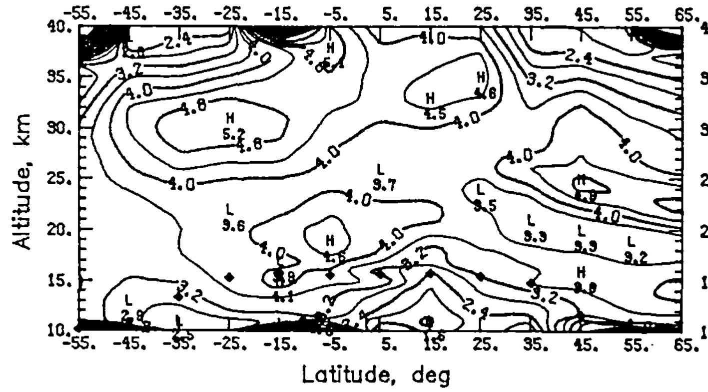


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

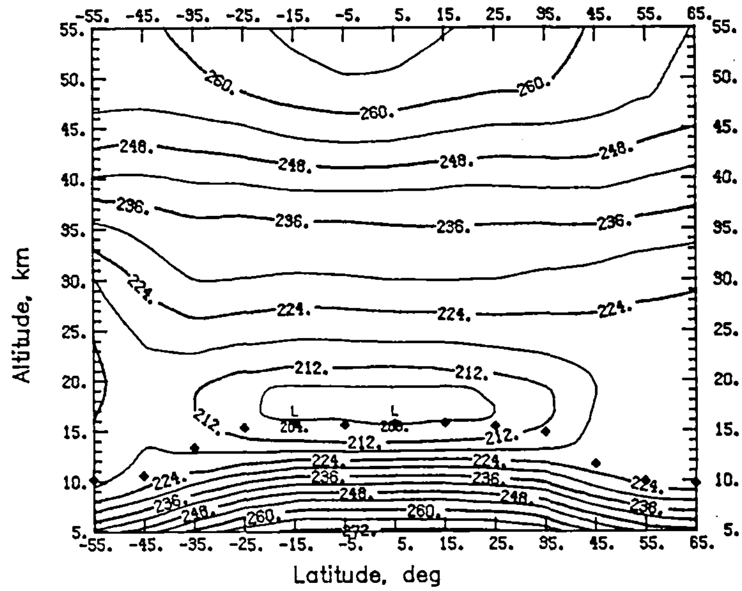


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 210. Zonally averaged extinction and temperature data for sweep 17, sunset events, August 28–September 27, 1980.

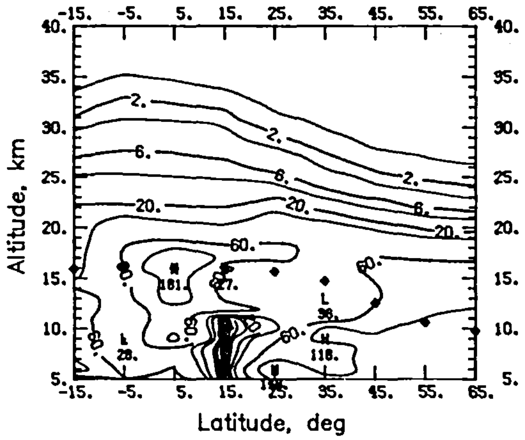


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

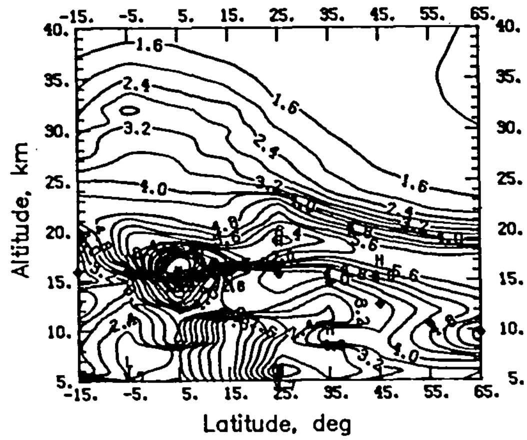


(e) Temperature (kelvin).

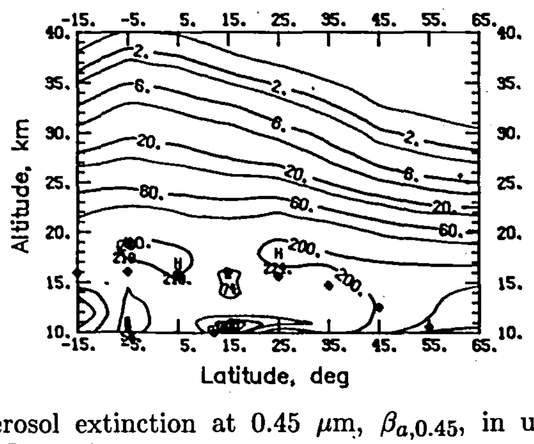
Figure 210. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

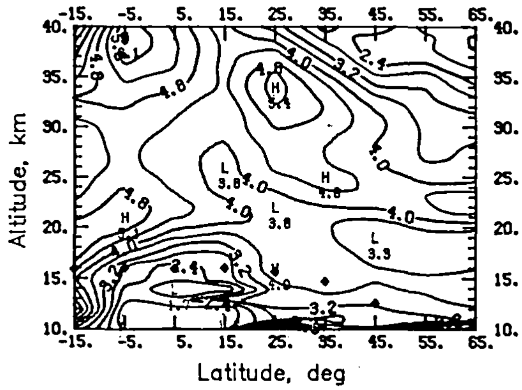


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

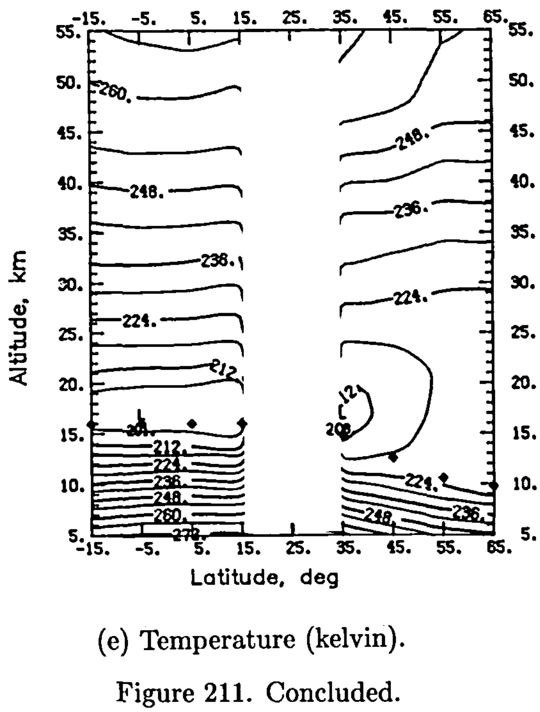


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 211. Zonally averaged extinction and temperature data for sweep 18, sunset events, September 27–October 20, 1980.

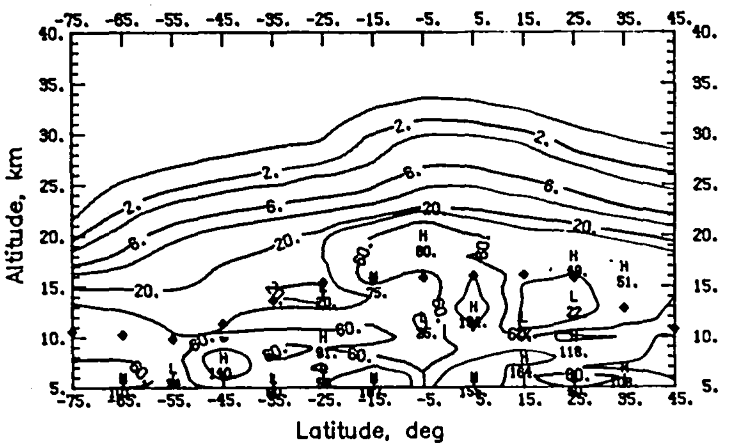


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

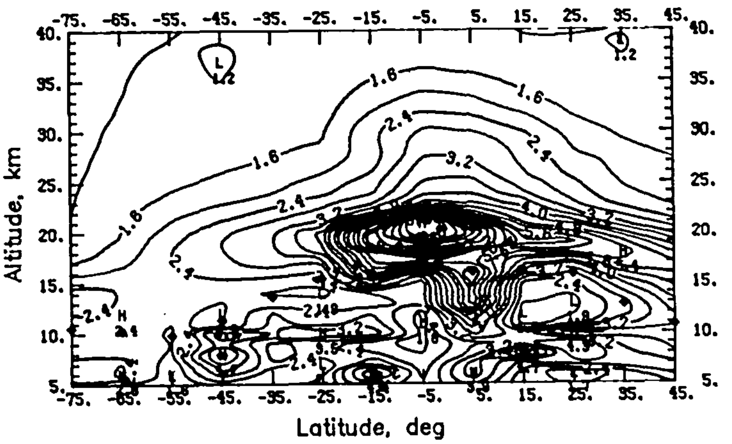


(e) Temperature (kelvin).

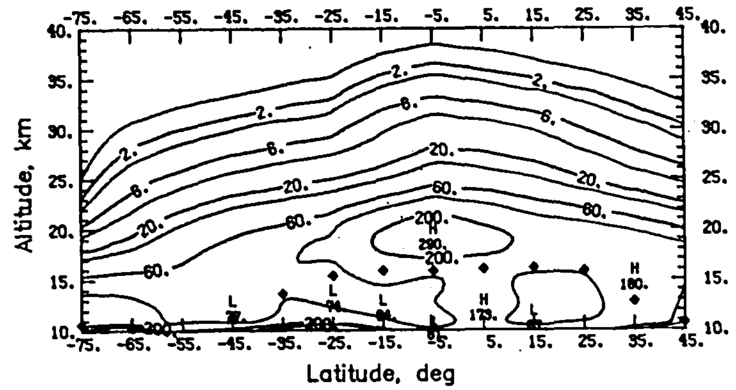
Figure 211. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

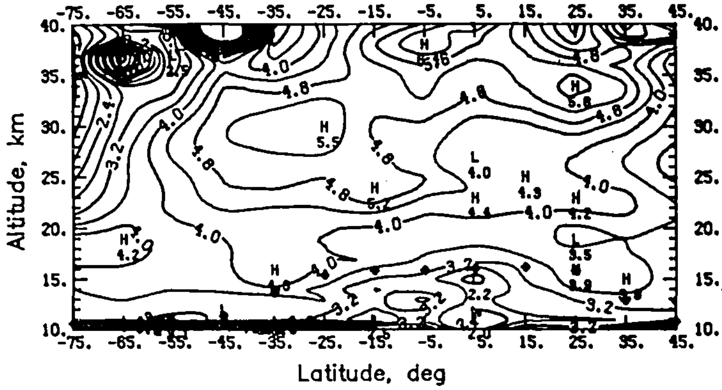


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

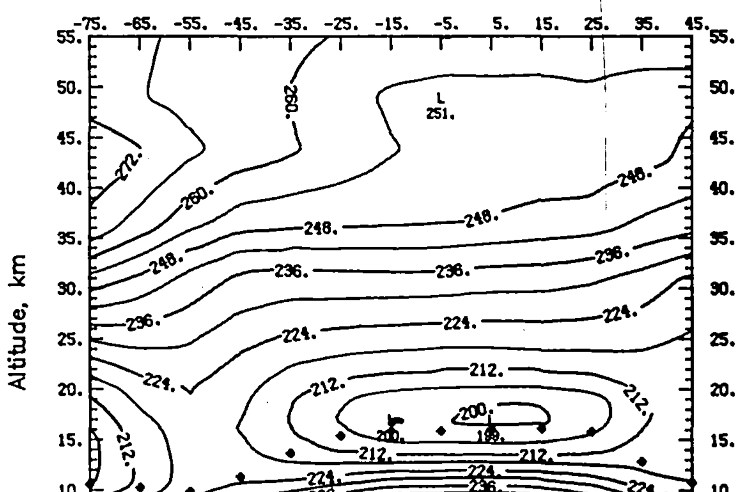


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 212. Zonally averaged extinction and temperature data for sweep 19, sunset events, October 31–December 13, 1980.

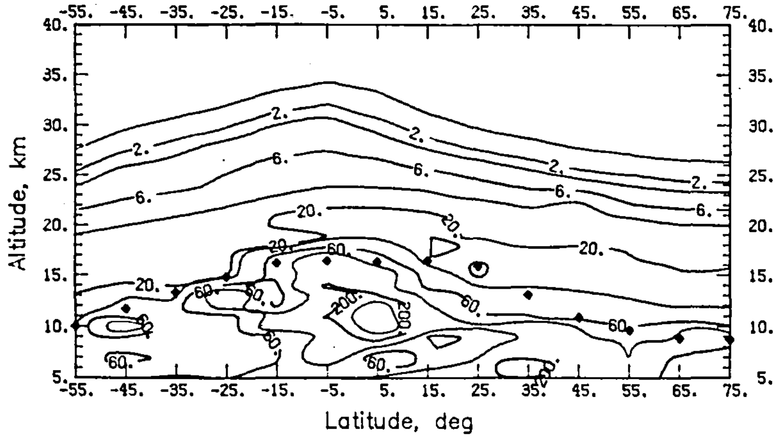


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

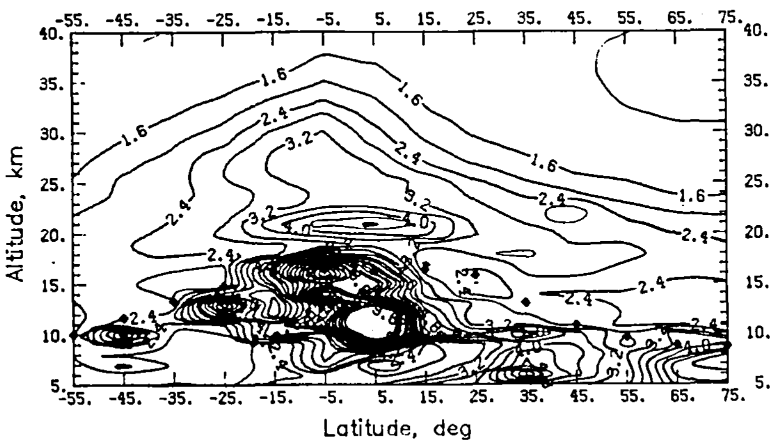


(e) Temperature (kelvin).

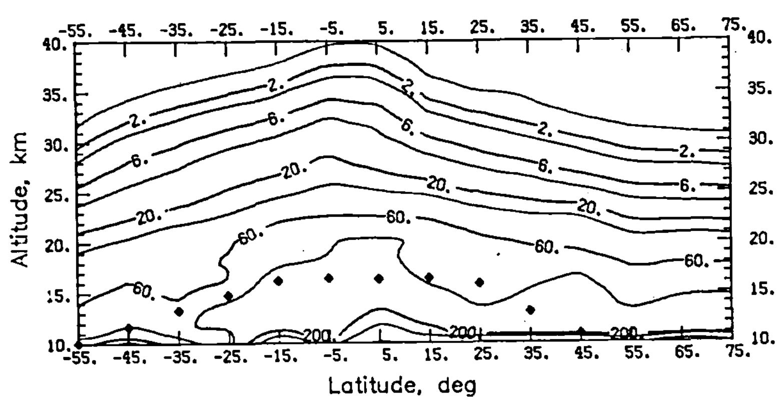
Figure 212. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

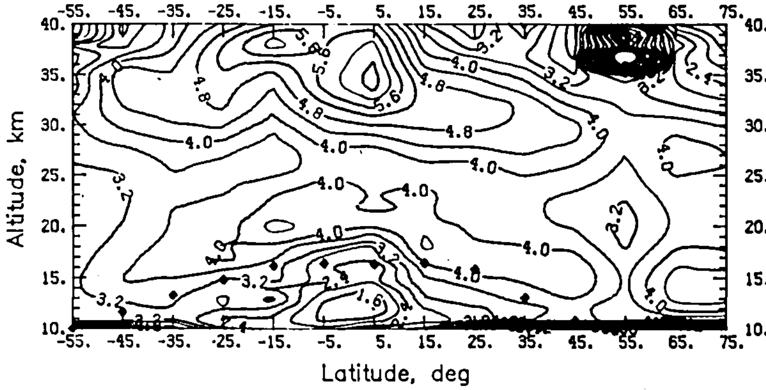


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

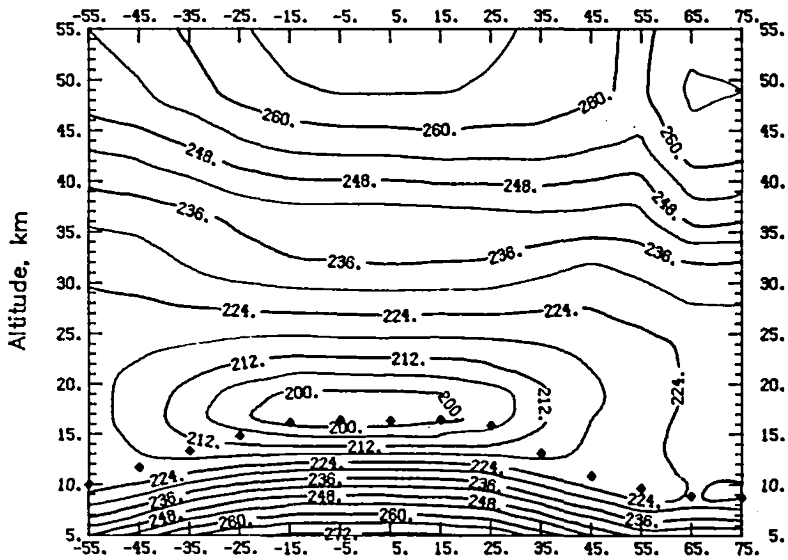


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 213. Seasonally averaged extinction and temperature data for spring 1980.

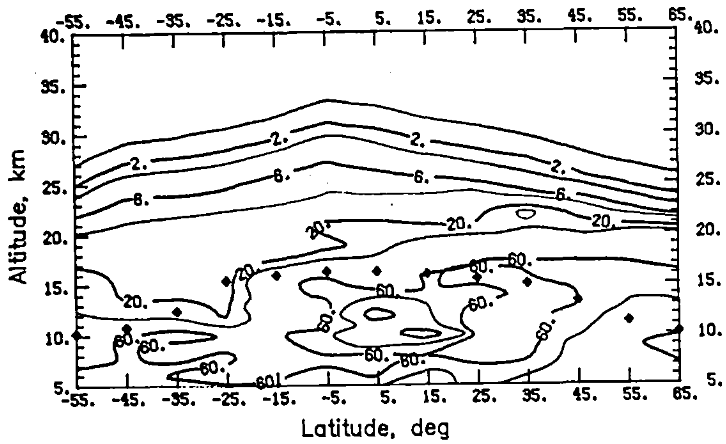


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

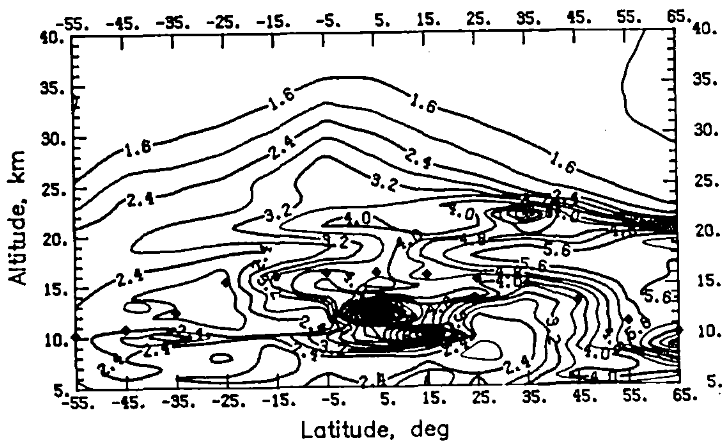


(e) Temperature (kelvin).

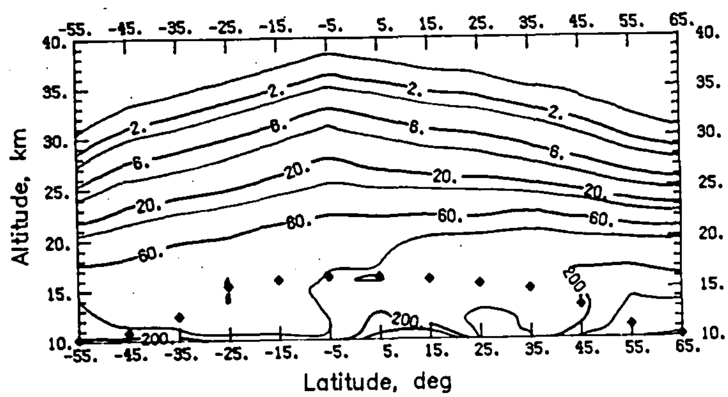
Figure 213. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

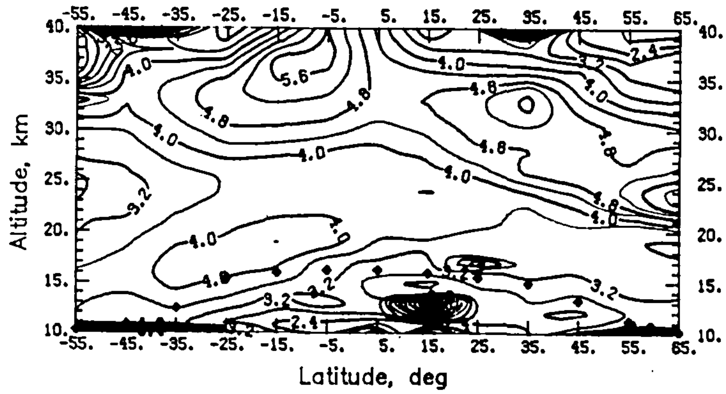


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

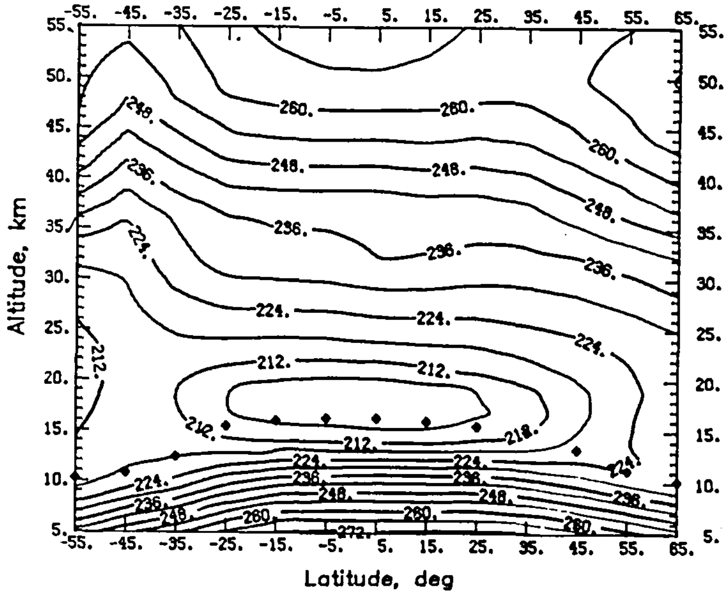


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 214. Seasonally averaged extinction and temperature data for summer 1980.

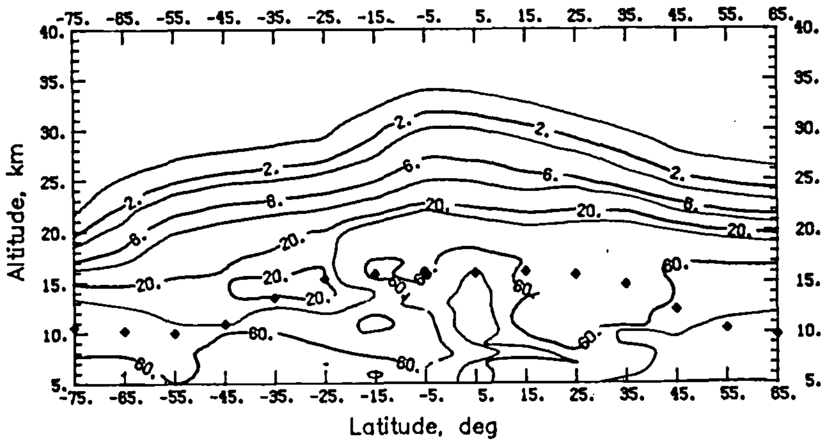


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

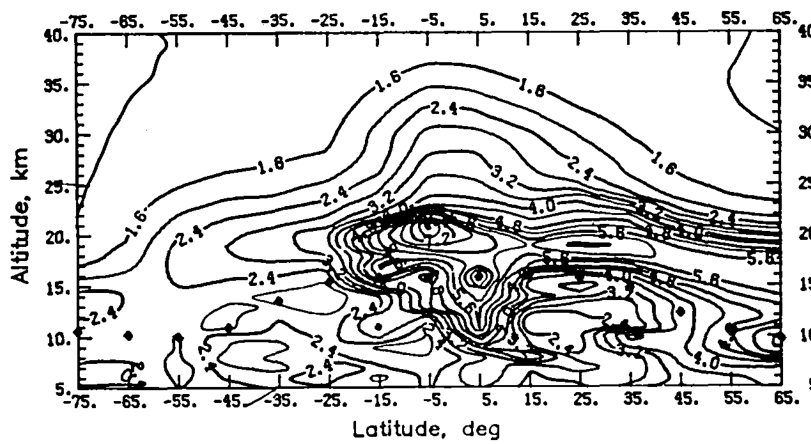


(e) Temperature (kelvin).

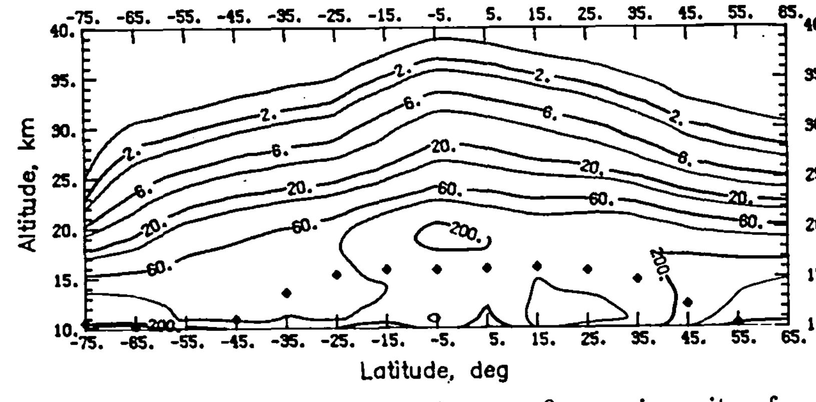
Figure 214. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

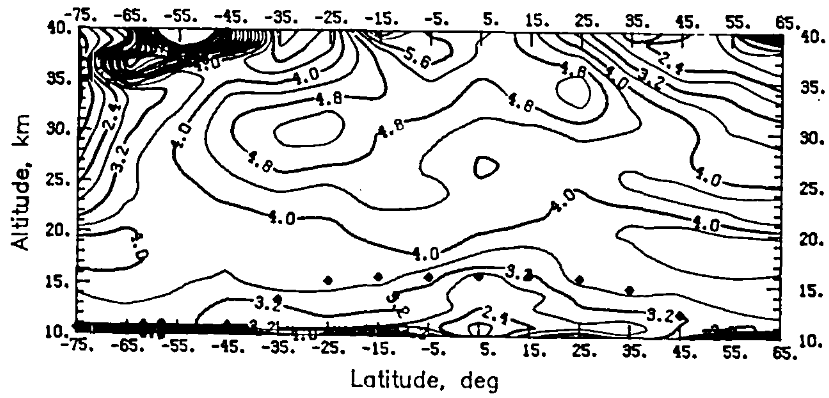


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

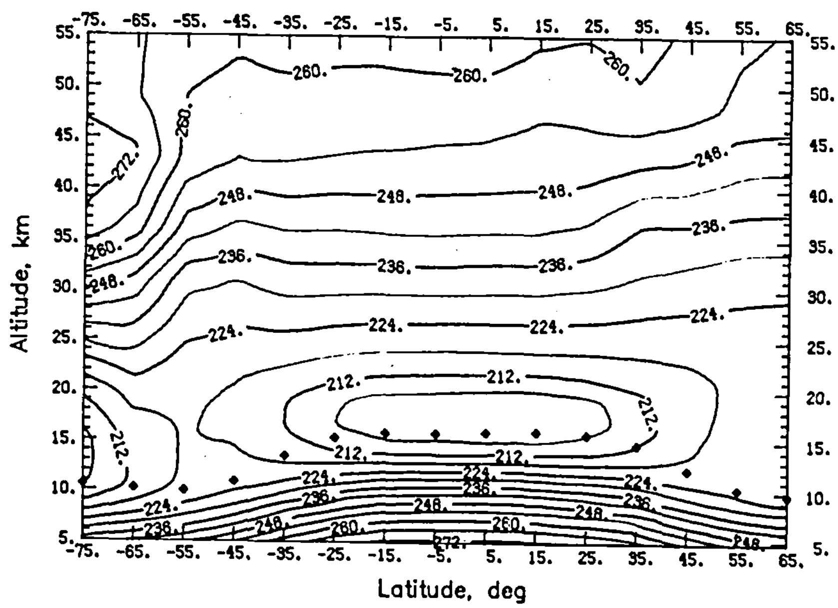


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 215. Seasonally averaged extinction and temperature data for fall 1980.

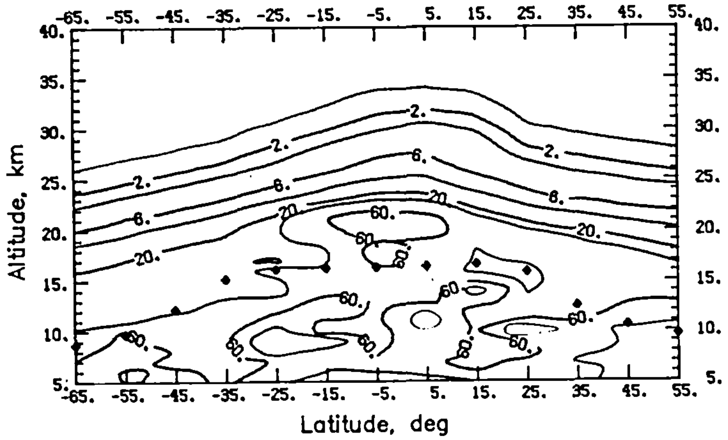


(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.

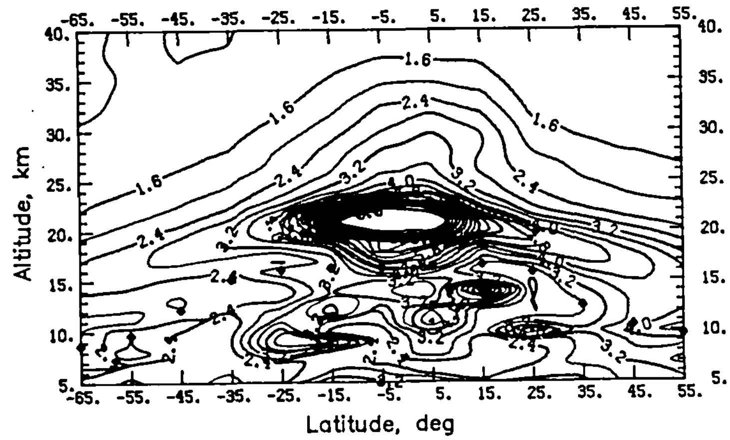


(e) Temperature (kelvin).

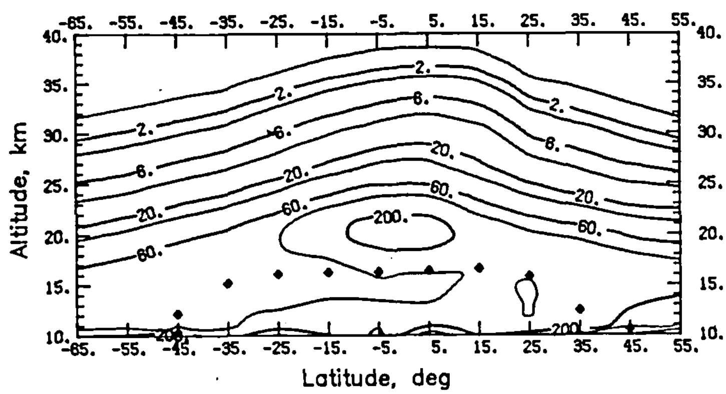
Figure 215. Concluded.



(a) Aerosol extinction at 1.00 μm, $\beta_{a,1.00}$, in units of 10^{-5} km^{-1}.

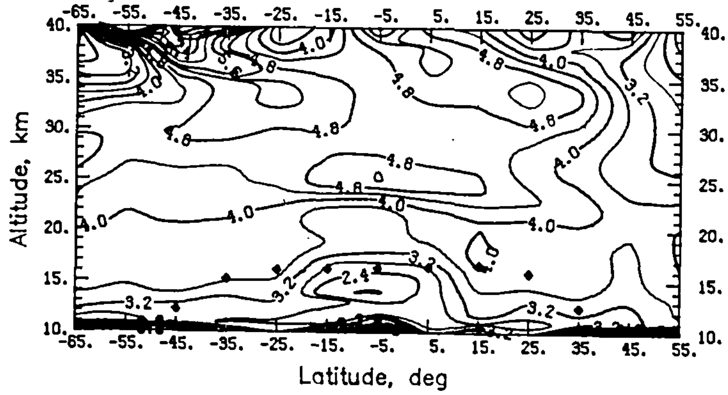


(b) Ratio of aerosol extinction to molecular extinction at 1.00 μm, $\beta_{a,1.00}/\beta_{m,1.00}$.

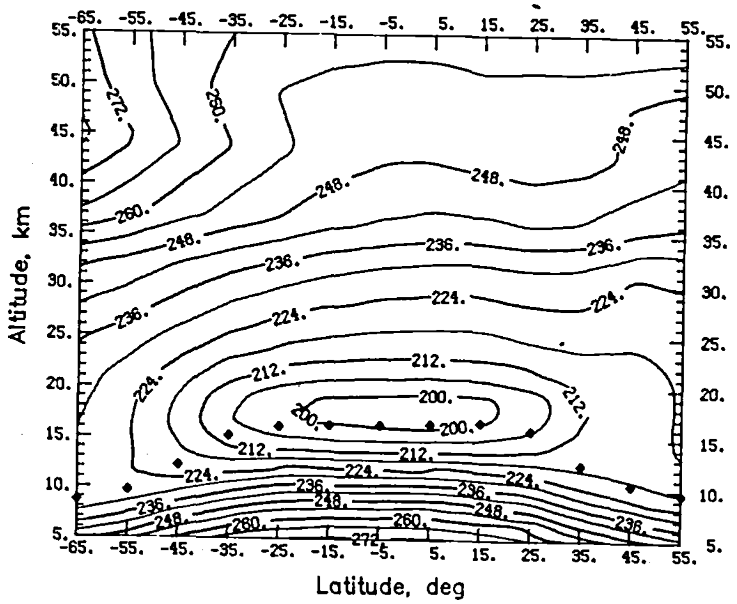


(c) Aerosol extinction at 0.45 μm, $\beta_{a,0.45}$, in units of 10^{-5} km^{-1}.

Figure 216. Seasonally averaged extinction and temperature data for winter 1980.



(d) Ratio of aerosol extinction at 0.45 μm to aerosol extinction at 1.00 μm, $\beta_{a,0.45}/\beta_{a,1.00}$.



(e) Temperature (kelvin).

Figure 216. Concluded.

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16. Abstract

The stratospheric Aerosol and Gas Experiment (SAGE) satellite system, launched on February 18, 1979, provides profiles of aerosol extinction at wavelengths of 1.00 μm and 0.45 μm, ozone concentration, and nitrogen dioxide concentration. This report presents data taken during sunset events in the form of zonal averages and seasonal averages of the aerosol extinction at 1.00 μm and 0.45 μm, ratios of the aerosol extinction to the molecular extinction at 1.00 μm, and ratios of the aerosol extinction at 0.45 μm to the aerosol extinction at 1.00 μm. The averages for 1980 are shown in tables and in profile and contour plots (as a function of altitude and latitude). In addition, temperature data provided by the National Oceanic and Atmospheric Administration (NOAA) for the time and location of each SAGE measurement are averaged and shown in a similar format. Typical values of the peak aerosol extinction not volcanically perturbed were 1×10^{-4} to 2×10^{-4} km^{-1} at 1.00 μm and 4×10^{-4} to 8×10^{-4} km^{-1} at 0.45 μm. Optical depth values for the 1.00-μm channel varied between 0.001 and 0.002 over all latitudes. In regions of volcanic activity following the eruptions of Mount St. Helens and Ulawun, the aerosol extinction values at 1.00 μm and 0.45 μm were 2 to 3 times higher than levels observed during near-background conditions. Stratospheric optical depth values in similar regions increased by a factor of about 2 to 3. Unlike the averages presented, individual observations may show enhancements in the aerosol extinction profiles an order of magnitude or more above the reported values. No attempt has been made in this report to give any detailed explanations or interpretations of these data. The intent of this report is to provide, in a ready-to-use visual format, representative zonal and seasonal averages of aerosol extinction data for the second calendar year of the SAGE data set to facilitate use in atmospheric and climatic studies.

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